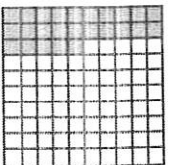


# Fractions, Decimals, Percents



25 out of 100 squares shaded  
25% shaded

## SKILL

31

Percent means *per hundred*. Percent is a ratio of a number to 100.

Write fractions as equivalent decimals and percents.

### Model A

Write  $\frac{2}{5}$  as a decimal and a percent.

#### Step 1

Find an equivalent decimal by first writing an equivalent fraction with a denominator of 100. the decimal as a percent.

**Think:**

What number times 5 equals 100?  
Since  $5 \times 20 = 100$ , multiply the numerator and denominator by 20.  
 $2 = \frac{2 \times 20}{5 \times 20} = \frac{40}{100}$

#### Step 2

Write the decimal for  $\frac{40}{100}$  *hundredths*. Then write the decimal as a percent.

$$\frac{40}{100} = 0.40$$

$$0.40 = 40\%$$

**Think:**  $\frac{40}{100}$  means 40 per 100.

### Model B

Write  $\frac{15}{25}$  as a decimal and a percent.

- Divide the numerator by the denominator.
- Write a decimal point followed by 2 zeros in the dividend.
- Then write a decimal point in the quotient.
- Write the decimal as a percent.

$$\frac{15}{25} = 15 \div 25$$

$$0.60$$

$$25 \overline{)15.00}$$

$$\underline{-150}$$

$$0$$

$$0.60 = 60\%$$

**Think:** 60 hundredths means 60 per 100.

## Try These

Write the fraction as a decimal and a percent.

1  $\frac{3}{4}$   $\frac{3 \times \square}{4 \times \square} = \frac{\square}{100}$   
 $\frac{3}{4} = \frac{\square}{100} = \dots = \dots$   
 $= \dots \%$

2  $\frac{1}{5}$   $\frac{1 \times \square}{5 \times \square} = \frac{\square}{100}$   
 $\frac{1}{5} = \frac{\square}{100} = \dots = \dots$   
 $= \dots \%$

3  $\frac{9}{10}$   $\frac{9}{10} = \frac{90}{100}$   
 $\frac{9}{10} = \frac{\square}{100} = \dots = \dots$   
 $= \dots \%$

4  $\frac{3}{25}$   $\frac{3}{25} = \frac{12}{100}$   
 $\frac{3}{25} = \frac{\square}{100} = \dots = \dots$   
 $= \dots \%$

Go to the next side.

# Practice on Your Own

# Skill 31

Write the fraction as a decimal and a percent.

$$\frac{7}{20}$$

$$\frac{7}{20} = \frac{7 \times 5}{20 \times 5} = \frac{35}{100}$$

$$\frac{7}{20} = \frac{35}{100} = 0.35 = 35\%$$

Think: What number times 20 equals 100?

$$\frac{3}{8} = 8 \overline{) 3.075}$$

$$\begin{array}{r} 0.375 \\ 8 \overline{) 3.075} \\ \underline{- 24} \phantom{00} \\ 60 \\ \underline{- 56} \phantom{00} \\ 40 \\ \underline{- 40} \\ 0 \end{array}$$

← Write zeros after the decimal point.

0.375 = 37.5% ← Move decimal point 2 places to the right.

Write the fraction as a decimal and a percent.

1  $\frac{1}{2}$

$$\frac{1}{2} = \frac{1 \times \square}{2 \times \square} = \frac{\square}{100}$$

$$\frac{1}{2} = \frac{\square}{100} = \dots\dots\dots$$

= \_\_\_%

2  $\frac{3}{5}$

$$\frac{3}{5} = \frac{3 \times \square}{5 \times \square} = \frac{\square}{100}$$

$$\frac{3}{5} = \frac{\square}{100} = \dots\dots\dots$$

= \_\_\_%

3  $\frac{6}{20}$

$$\frac{6}{20} = \frac{6 \times \square}{20 \times \square} = \frac{\square}{100}$$

$$\frac{6}{20} = \frac{\square}{100} = \dots\dots\dots$$

= \_\_\_%

4  $\frac{22}{40}$

$$\frac{22}{40} = 40 \overline{) 22.000}$$

$$\begin{array}{r} 0.55 \\ 40 \overline{) 22.000} \\ \underline{- 20} \phantom{000} \\ 20 \phantom{00} \\ \underline{- 20} \phantom{00} \\ 0 \phantom{00} \\ \underline{- 0} \phantom{00} \\ 0 \phantom{00} \\ \underline{- 0} \phantom{00} \\ 0 \phantom{00} \end{array}$$

$$\frac{22}{40} = \dots\dots\dots = \dots\dots\dots\%$$

5  $\frac{2}{3}$

$$\frac{2}{3} = 3 \overline{) 2.000}$$

$$\begin{array}{r} 0.666 \\ 3 \overline{) 2.000} \\ \underline{- 6} \phantom{000} \\ 14 \phantom{00} \\ \underline{- 12} \phantom{00} \\ 20 \phantom{00} \\ \underline{- 18} \phantom{00} \\ 20 \phantom{00} \\ \underline{- 18} \phantom{00} \\ 20 \phantom{00} \\ \underline{- 18} \phantom{00} \\ 20 \phantom{00} \end{array}$$

$$\frac{2}{3} = \dots\dots\dots = \dots\dots\dots\%$$

6  $\frac{5}{8}$

$$\frac{5}{8} = 8 \overline{) 5.0000}$$

$$\begin{array}{r} 0.625 \\ 8 \overline{) 5.0000} \\ \underline{- 4} \phantom{0000} \\ 10 \phantom{000} \\ \underline{- 8} \phantom{000} \\ 20 \phantom{000} \\ \underline{- 16} \phantom{000} \\ 40 \phantom{000} \\ \underline{- 40} \phantom{000} \\ 0 \phantom{000} \\ \underline{- 0} \phantom{000} \\ 0 \phantom{000} \end{array}$$

$$\frac{5}{8} = \dots\dots\dots = \dots\dots\dots\%$$

7  $\frac{4}{5}$

$$\dots\dots\dots = \dots\dots\dots\%$$

8  $\frac{21}{25}$

$$\dots\dots\dots = \dots\dots\dots\%$$

9  $\frac{1}{8}$

$$\dots\dots\dots = \dots\dots\dots\%$$

## Check

Write the fraction as a decimal and as a percent.

10  $\frac{5}{10}$

$$\dots\dots\dots = \dots\dots\dots\%$$

11  $\frac{33}{50}$

$$\dots\dots\dots = \dots\dots\dots\%$$

12  $\frac{11}{25}$

$$\dots\dots\dots = \dots\dots\dots\%$$

## Multiplication Facts

# SKILL

# 36

Use strategies to recall multiplication facts.

### Use Facts You Know

Use a fact you already know to find a fact you do not know.

If you know:  $3 \times 8 = 24$

Then you also know:  $8 \times 3 = 24$

If you know:  $7 \times 5 = 35$

Then you can find:  $7 \times 6 = \square$

Think:  $7 \times 6$  is  $(7 \times 5) + 7$ , or  $35 + 7$ ,  
or 42.

So,  $7 \times 6 = 42$ .

### Use Patterns

If you use a multiplication table, you can look for patterns in products.

**Multiply by 9, 10, 11, 12**

**Facts for  $9 \times 1$  to  $9 \times 10$ :** Ones digits decrease by 1. Tens digits increase by 1. The sum of the digits in the product is 9.

**Facts for  $12 \times 0$  to  $12 \times 9$ :** Ones digits repeat: 0, 2, 4, 6, 8, ...

What other patterns can you find?

### Try These

Use strategies to multiply.

1 Use facts you know.

$$2 \times 8 = \underline{\quad} \quad \text{So, } 8 \times 2 = \underline{\quad}$$

$$3 \times 8 = \underline{\quad} \quad \text{So, } 3 \times 9 = \underline{\quad}$$

2 Use patterns.

$$10 \times 1 = \underline{\quad} \quad 10 \times 2 = \underline{\quad}$$

$$10 \times 3 = \underline{\quad} \quad 10 \times 4 = \underline{\quad}$$

$$10 \times 5 = \underline{\quad} \quad 10 \times 6 = \underline{\quad}$$

Go to the next slide.

## Practice on Your Own

## Skill 36

### Use Facts You Know

$6 \times 5 = \square$

If you know:

$5 \times 5 = 25$

**Then think:**

$6 \times 5 = (5 \times 5) + 5, \text{ or } 30$

**So,  $6 \times 5 = 30$ .**

### Use Patterns

Look for patterns to help you remember multiplication facts.

For products of 9 and 1 through 9, the digits of all multiples of 9 add up to 9.

Products of 10 end in 0.

For products of 11 and 1 through 9, you see the same digit in the tens and ones place.

Products of 12 end in 0, 2, 4, 6, or 8.

### Use facts you know.

1  $4 \times 8 = \underline{\quad}$

So,  $4 \times 9 = \underline{\quad}$

2  $5 \times 8 = \underline{\quad}$

So,  $5 \times 9 = \underline{\quad}$

3  $6 \times 8 = \underline{\quad}$

So,  $6 \times 9 = \underline{\quad}$

4  $3 \times 5 = \underline{\quad}$

So,  $3 \times 6 = \underline{\quad}$

5  $2 \times 5 = \underline{\quad}$

So,  $2 \times 6 = \underline{\quad}$

6  $4 \times 3 = \underline{\quad}$

So,  $4 \times 4 = \underline{\quad}$

### Use patterns.

7  $10 \times 5 = \underline{\quad}$   $10 \times 6 = \underline{\quad}$  8  $11 \times 3 = \underline{\quad}$   $11 \times 4 = \underline{\quad}$  9  $12 \times 4 = \underline{\quad}$   $12 \times 5 = \underline{\quad}$

$10 \times 7 = \underline{\quad}$   $10 \times 8 = \underline{\quad}$   $11 \times 5 = \underline{\quad}$   $11 \times 6 = \underline{\quad}$   $12 \times 6 = \underline{\quad}$   $12 \times 7 = \underline{\quad}$

### Multiply.

10  $8 \times 7 = \underline{\quad}$

11  $10 \times 9 = \underline{\quad}$

12  $9 \times 11 = \underline{\quad}$

13  $12 \times 8 = \underline{\quad}$

### Check

#### Multiply.

14  $4 \times 7 = \underline{\quad}$

15  $6 \times 6 = \underline{\quad}$

16  $10 \times 3 = \underline{\quad}$

17  $11 \times 7 = \underline{\quad}$

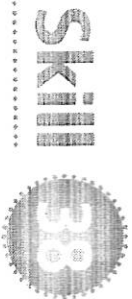
18  $10 \times 5 = \underline{\quad}$

19  $7 \times 9 = \underline{\quad}$

20  $5 \times 11 = \underline{\quad}$

21  $12 \times 11 = \underline{\quad}$

## Division Facts



Division is the opposite or inverse of multiplication. Use this idea to help recall division facts.

$$63 \div 7 = \square$$

Think of a related multiplication fact to find the quotient.

Think: 7 times what number is 63?

$$63 \div 7 = \square$$

$$7 \times 9 = 63$$

$$\text{So, } 63 \div 7 = 9.$$

Since multiplication is the inverse of division, you can use a multiplication table to find quotients for division facts.

To find  $108 \div 12$ :

1. Look down the factor column. Find 12.
  2. Then look across the 12-row. Find 108.
  3. Trace up from 108. Find the factor in the factor-row at the top. It is 9.
- So,  $12 \times 9 = 108$  and  $108 \div 12 = 9$ .

|    |   |    |    |    |    |    |    |    |    |     |     |     |     |
|----|---|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| x  | 0 | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   | 10  | 11  | 12  |
| 0  | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 0   |
| 1  | 0 | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   | 10  | 11  | 12  |
| 2  | 0 | 2  | 4  | 6  | 8  | 10 | 12 | 14 | 16 | 18  | 20  | 22  | 24  |
| 3  | 0 | 3  | 6  | 9  | 12 | 15 | 18 | 21 | 24 | 27  | 30  | 33  | 36  |
| 4  | 0 | 4  | 8  | 12 | 16 | 20 | 24 | 28 | 32 | 36  | 40  | 44  | 48  |
| 5  | 0 | 5  | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45  | 50  | 55  | 60  |
| 6  | 0 | 6  | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54  | 60  | 66  | 72  |
| 7  | 0 | 7  | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63  | 70  | 77  | 84  |
| 8  | 0 | 8  | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72  | 80  | 88  | 96  |
| 9  | 0 | 9  | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81  | 90  | 99  | 108 |
| 10 | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90  | 100 | 110 | 120 |
| 11 | 0 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | 88 | 99  | 110 | 121 | 132 |
| 12 | 0 | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 |

### Try These

Use multiplication to divide.

1  $48 \div 6 = \underline{\quad}$

Think:  $6 \times \underline{\quad}$  is 48.

So,  $48 \div 6 = \underline{\quad}$ .

2  $81 \div 9 = \underline{\quad}$

Think:  $9 \times \underline{\quad}$  is 81.

So,  $81 \div 9 = \underline{\quad}$ .

3  $55 \div 5 = \underline{\quad}$

Think:  $5 \times \underline{\quad}$  is 55.

So,  $55 \div 5 = \underline{\quad}$ .

4  $84 \div 12 = \underline{\quad}$

Think:  $12 \times \underline{\quad}$  is 84.

So,  $84 \div 12 = \underline{\quad}$ .

Go to the next slide.

# Practice on Your Own

# Skill 38

Find:  $27 \div 3 = \square$

**Think:** 3 times what number is 27?

$3 \times 9 = 27$

**So,**  $27 \div 3 = 9$ .

Find:  $48 \div 6 = \square$

Use the multiplication table.

- Look across the top row to 6.
- Then look down to 48.
- Trace back from 48 to find the factor at the far left. It is 8.

**So,**  $6 \times 8 = 48$   
and  $48 \div 6 = 8$ .

| x | 0 | 1 | 2  | 3  | 4  | 5  | 6  |
|---|---|---|----|----|----|----|----|
| 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  |
| 1 | 0 | 1 | 2  | 3  | 4  | 5  | 6  |
| 2 | 0 | 2 | 4  | 6  | 8  | 10 | 12 |
| 3 | 0 | 3 | 6  | 9  | 12 | 15 | 18 |
| 4 | 0 | 4 | 8  | 12 | 16 | 20 | 24 |
| 5 | 0 | 5 | 10 | 15 | 20 | 25 | 30 |
| 6 | 0 | 6 | 12 | 18 | 24 | 30 | 36 |
| 7 | 0 | 7 | 14 | 21 | 28 | 35 | 42 |
| 8 | 0 | 8 | 16 | 24 | 32 | 40 | 48 |

Use multiplication to divide.

**1** **Think:**  
 $7 \times 4 = \underline{\quad}$

**So,**  $28 \div 7 = \underline{\quad}$

**2** **Think:**  
 $9 \times 7 = \underline{\quad}$

**So,**  $63 \div 9 = \underline{\quad}$

**3** **Think:**  
 $4 \times 10 = \underline{\quad}$

**So,**  $40 \div 4 = \underline{\quad}$

**4** **Think:**  
 $12 \times 4 = \underline{\quad}$

**So,**  $48 \div 12 = \underline{\quad}$

**5** **Think:**  
 $5 \times 6 = \underline{\quad}$

**So,**  $30 \div 5 = \underline{\quad}$

**6** **Think:**  
 $7 \times 7 = \underline{\quad}$

**So,**  $49 \div 7 = \underline{\quad}$

**7** **Think:**  
 $3 \times 12 = \underline{\quad}$

**So,**  $36 \div 3 = \underline{\quad}$

**8** **Think:**  
 $9 \times 10 = \underline{\quad}$

**So,**  $90 \div 9 = \underline{\quad}$

Divide.

**9**  $56 \div 8 = \underline{\quad}$

**10**  $33 \div 3 = \underline{\quad}$

**11**  $42 \div 7 = \underline{\quad}$

**12**  $54 \div 9 = \underline{\quad}$

**13**  $32 \div 8 = \underline{\quad}$

**14**  $28 \div 7 = \underline{\quad}$

**15**  $44 \div 4 = \underline{\quad}$

**16**  $84 \div 7 = \underline{\quad}$

**17**  $36 \div 9 = \underline{\quad}$

**18**  $24 \div 3 = \underline{\quad}$

**19**  $81 \div 9 = \underline{\quad}$

**20**  $56 \div 7 = \underline{\quad}$

**21**  $49 \div 7 = \underline{\quad}$

**22**  $108 \div 12 = \underline{\quad}$

**23**  $72 \div 12 = \underline{\quad}$

**24**  $48 \div 12 = \underline{\quad}$

## Check

Divide.

**25**  $35 \div 5 = \underline{\quad}$

**26**  $22 \div 11 = \underline{\quad}$

**27**  $99 \div 9 = \underline{\quad}$

**28**  $60 \div 12 = \underline{\quad}$

## Operations with Fractions

**Remember:** The least common denominator (LCD) of two fractions is the least common multiple (LCM) of the denominators. The greatest common factor (GCF) is the largest number that is a factor of two or more numbers.

# SKILL

# 42

You can add, subtract, multiply, and divide with fractions.

**Example A** Add.  $\frac{3}{4} + \frac{2}{5} = \square$

The denominators are different.

So, use the LCD to write equivalent fractions.

$$\begin{array}{r} \frac{3}{4} = \frac{3 \times 5}{4 \times 5} = \frac{15}{20} \\ - \frac{2}{5} = + \frac{2 \times 4}{5 \times 4} = + \frac{8}{20} \end{array}$$

LCD is 20.

Add the numerators.

Simplify the answer.  $\frac{23}{20} = \frac{20}{20} + \frac{3}{20} = 1\frac{3}{20}$

So,  $\frac{3}{4} + \frac{2}{5} = 1\frac{3}{20}$ .

**Example B** Subtract.  $\frac{13}{15} - \frac{2}{3} = \square$

The denominators are different.

So, use the LCD to write equivalent fractions.

$$\begin{array}{r} \frac{13}{15} = \rightarrow = \frac{13}{15} \\ - \frac{2}{3} = - \frac{2 \times 5}{3 \times 5} = - \frac{10}{15} \end{array}$$

LCD is 15.

Subtract the numerators.

Simplify the answer.  $\frac{3}{15} = \frac{1}{5}$

So,  $\frac{13}{15} - \frac{2}{3} = \frac{1}{5}$ .

**Example C** Multiply.  $\frac{3}{6} \times \frac{4}{12} = \square$

Multiply the numerators.

Then multiply the denominators.

$$\frac{3}{6} \times \frac{4}{12} = \frac{3 \times 4}{6 \times 12} = \frac{12}{72} = \frac{12 \div 12}{72 \div 12} = \frac{1}{6}$$

Divide by GCF, 12.

So,  $\frac{3}{6} \times \frac{4}{12} = \frac{1}{6}$ .

**Example D** Divide.  $\frac{5}{7} \div \frac{1}{2} = \square$

To divide with fractions, first write the reciprocal of the divisor. Then multiply.

$$\frac{5}{7} \div \frac{1}{2} = \frac{5 \times 2}{7 \times 1} =$$

reciprocal of  $\frac{1}{2}$

Simplify  $\frac{10}{7}$ , or  $1\frac{3}{7}$

So,  $\frac{5}{7} \div \frac{1}{2} = 1\frac{3}{7}$ .

### Try These

1 Find  $\frac{1}{2} + \frac{2}{5} = \square$ .

2 Find  $\frac{5}{6} - \frac{1}{3} = \square$ .

3 Find  $2 \times \frac{1}{6} = \square$ .

4 Find  $\frac{4}{7} \div \frac{2}{14} = \square$ .

Go to the next slide.

## Practice on Your Own

## Skill 42

Find  $\frac{6}{7} - \frac{2}{3}$ .

Use the LCD to write equivalent fractions.

$$\begin{array}{r} \text{LCD is 21.} \quad \frac{6}{7} = \frac{6 \times 3}{7 \times 3} = \frac{18}{21} \\ - \frac{2}{3} = - \frac{2 \times 7}{3 \times 7} = - \frac{14}{21} \\ \hline \end{array}$$

Subtract the numerators.  $\frac{4}{21}$

$$\text{So, } \frac{6}{7} - \frac{2}{3} = \frac{4}{21}$$

Find  $\frac{3}{8} \div \frac{1}{6}$ .

Write the reciprocal of the divisor. Multiply.

$$\begin{array}{r} \frac{3}{8} \div \frac{1}{6} = \frac{3}{8} \times \frac{6}{1} \\ = \frac{18}{8} \quad \begin{array}{l} 3 \times 6 = 18 \\ 8 \times 1 = 8 \end{array} \\ = \frac{9}{4} \text{ or } 2\frac{1}{4} \quad \text{Simplify.} \end{array}$$

$$\text{So, } \frac{3}{8} \div \frac{1}{6} = 2\frac{1}{4}$$

Add.

1 Rewrite with the LCD.

$$\begin{array}{r} \frac{1}{4} = \\ + \frac{3}{8} = \\ \hline \end{array}$$

2

$$\begin{array}{r} \frac{5}{12} = \\ + \frac{7}{9} = \\ \hline \end{array}$$

Subtract.

3 Rewrite with the LCD.

$$\begin{array}{r} \frac{4}{5} = \\ - \frac{2}{3} = \\ \hline \end{array}$$

4

$$\begin{array}{r} \frac{11}{15} = \\ - \frac{6}{10} = \\ \hline \end{array}$$

Multiply.

5  $\frac{3}{5} \times \frac{1}{6} = \frac{\square \times \square}{\square \times \square} = \underline{\hspace{2cm}}$

Simplest form: \_\_\_\_\_

6  $\frac{5}{8} \times \frac{3}{10} = \frac{\square \times \square}{\square \times \square} = \underline{\hspace{2cm}}$

Simplest form: \_\_\_\_\_

Divide.

7  $\frac{4}{9} \div \frac{1}{3} = \frac{4 \times \square}{9 \times \square} = \underline{\hspace{2cm}}$

Simplest form: \_\_\_\_\_

8  $\frac{9}{10} \div \frac{3}{6} = \frac{\square \times \square}{\square \times \square} = \underline{\hspace{2cm}}$

Simplest form: \_\_\_\_\_

### Check

Add, subtract, multiply, or divide. Write the answer in simplest form.

9  $\frac{7}{18} + \frac{5}{6} = \underline{\hspace{2cm}}$

10  $\frac{13}{16} - \frac{1}{2} = \underline{\hspace{2cm}}$

11  $\frac{4}{7} \times \frac{3}{12} = \underline{\hspace{2cm}}$

12  $\frac{6}{15} \div \frac{8}{9} = \underline{\hspace{2cm}}$



# Order of Operations

# Skill 51

Evaluate an expression by using the order of operations.

## Order of Operations

1. Do the operation in parentheses.
2. Simplify exponents.
3. Multiply and divide from left to right.
4. Add and subtract from left to right.

Evaluate  $7 + 2 \times 3$ .

$$2 \times 3 = 6$$

$7 + 2 \times 3$  Multiply first.  
 $7 + 6$  Then add.  
 13  
 The value of the expression is 13.

Evaluate  $3^2 + (4 \div 2)$ .

$$2 \div 2 = 1$$

$3^2 + (4 \div 2)$  Operate within parentheses.  
 $3^2 + 2$  Simplify the exponent.  
 $3 \times 3 = 9$   
 $9 + 2$  Add.  
 11  
 The value of the expression is 11.

Evaluate  $\frac{(4+2)}{3} + 4^2$ .

$$\frac{4+2}{3} + 4^2 = 6 + 16 = 22$$

$\frac{(4+2)}{3} + 4^2$  Operate within parentheses.  
 $\frac{6}{3} + 16$  Simplify the exponent.  
 $2 + 16$  Divide.  
 18 Add.  
 The value of the expression is 18.

## Try These

Evaluate each expression. Write what you do.

1  $3 + 8 \div 2$

First do: \_\_\_\_\_  
 Then do: \_\_\_\_\_  
 The value is \_\_\_\_\_.

2  $(5 + 3) \times 7$

First do: \_\_\_\_\_  
 Then do: \_\_\_\_\_  
 The value is \_\_\_\_\_.

3  $\frac{(12-3)}{3} \times 8$

First do: \_\_\_\_\_  
 Next do: \_\_\_\_\_  
 Then do: \_\_\_\_\_  
 The value is \_\_\_\_\_.

4  $5^2 - (10 - 6)$

First do: \_\_\_\_\_  
 Next do: \_\_\_\_\_  
 Then do: \_\_\_\_\_  
 The value is \_\_\_\_\_.

Go to the next slide.

## Practice on Your Own

# Skill 51

**Think:**

Order of operations:

1. Operate within parentheses.
2. Simplify exponents.
3. Multiply and divide from left to right.
4. Add and subtract from left to right.

Evaluate  $\frac{(29 - 5)}{4} + 2^3$ .

$\frac{(29 - 5)}{4} + 2^3$  Operate within parentheses.  $29 - 5 = 24$   
 $\frac{24}{4} + 2^3$  Simplify the exponent.  $2 \times 2 \times 2 = 8$   
 $\frac{24}{4} + 8$  Divide.  $24 \div 4 = 6$   
 $6 + 8$  Add.  
 14  
 The value of the expression is 14.

Evaluate each expression.

1  $7 + 10 \div 5$

First do: \_\_\_\_\_

Then do: \_\_\_\_\_

The value is \_\_\_\_\_.

2  $\frac{(18 - 6)}{4} \times 2$

First do: \_\_\_\_\_

Next do: \_\_\_\_\_

Then do: \_\_\_\_\_

The value is \_\_\_\_\_.

3  $\frac{(15 - 6)}{3} + 4^2$

First do: \_\_\_\_\_

Next do: \_\_\_\_\_

Then do: \_\_\_\_\_

Then do: \_\_\_\_\_

The value is \_\_\_\_\_.

Evaluate each expression. Write the steps you use to evaluate.

4  $5^2 \div (8 - 3)$

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

5  $(18 + 18) \div 3^2$

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

6  $\frac{(12 - 3)}{3} \times 8$

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

### Check

Evaluate each expression. Write the steps you use to evaluate.

7  $(5 \times 2) + (8 - 3)$

\_\_\_\_\_  
 \_\_\_\_\_

8  $4^2 - (13 - 5)$

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

9  $\frac{(16 - 7)}{9} + 6^2$

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Words for Operations

# SKILL

# 53

Write an algebraic expression for a word expression.

**Think:** An algebraic expression can contain one or more numbers, operations, and variables.

### Write an Algebraic Expression for a Word Expression

#### Expression

Read the word expression.

Decide what operation to use.

Then write the algebraic expression.

- the sum of 6 and  $n$   
addition  
 $6 + n$

- the difference of 15 and  $b$   
subtraction  
 $15 - b$

- the product of 8 and  $n$   
multiplication  
 $8n$

- the quotient of 36 and  $n$   
division  
 $\frac{36}{n}$

Remember there are different forms for multiplication:

$$8 \times n, 8n$$

Remember there are different forms for division:

$$2 \overline{)4}, 4 \div 2, \frac{4}{2}$$

### Write a Word Expression for an Algebraic Expression

#### Expression

There are different phrases that you can use to represent algebraic expressions.

#### Algebraic Expression

#### Word Expression

$$2 + n$$

the sum of 2 and  $n$   
2 increased by  $n$

2 plus  $n$

2 more than  $n$

a number  $n$  plus 2

$$n - 6$$

the difference of  $n$  and 6  
 $n$  decreased by 6

$n$  minus 6

6 less than a number  $n$

the product of  $x$ ,  $y$ , and  $z$

$x$  times  $y$  times  $z$

$$\frac{45}{a}$$

the quotient of 45 and  $a$   
45 divided by  $a$

### Try These

Write the operation and algebraic expression for each word expression.

- 1 5 increased by  $t$

Operation: \_\_\_\_\_

Algebraic expression: \_\_\_\_\_

- 2 The difference of 12 and  $p$ .

Operation: \_\_\_\_\_

Algebraic expression: \_\_\_\_\_

Go to the next slide.

# Practice on Your Own

# Skill 53

Sometimes there is more than one operation in an expression.

| Word Expression   | Algebraic Expression |
|---|----------------------|
| the difference of the product of $a$ and $b$ and 7<br>subtraction                  multiplication | $ab - 7$             |
| $y$ less than the quotient of 64 and 8<br>division                          subtraction           | $\frac{64}{8} - y$   |

Write the operation and algebraic expression for each word expression.

**1** the **product** of  $m$  and 2  
Operation: \_\_\_\_\_  
Algebraic expression: \_\_\_\_\_

**2** 8 **less than**  $x$   
Operation: \_\_\_\_\_  
Algebraic expression: \_\_\_\_\_

**3** the **quotient** of 24 and  $c$   
Operation: \_\_\_\_\_  
Algebraic expression: \_\_\_\_\_

**4** the **sum** of 4 and  $s$   
Operation: \_\_\_\_\_  
Algebraic expression: \_\_\_\_\_

**5** 5 **times**  $b$   
Operation: \_\_\_\_\_  
Algebraic expression: \_\_\_\_\_

**6**  $r$  **decreased by** 11  
Operation: \_\_\_\_\_  
Algebraic expression: \_\_\_\_\_

Write the letter of the word expression for the algebraic expression.

**7**  $\frac{t}{5}$  \_\_\_\_\_  
**a.** the product of 5 and  $t$

**8**  $5t$  \_\_\_\_\_  
**b.** a number  $t$  plus 5

**9**  $t + 5$  \_\_\_\_\_  
**c.**  $t$  decreased by 5

**10**  $t - 5$  \_\_\_\_\_  
**d.** the quotient of  $t$  and 5

Write the operation(s) and algebraic expression.

**11** the **sum** of 3 and the quantity 8 times  $p$   
\_\_\_\_\_  
\_\_\_\_\_

**12** the **difference** of the product of 7 and  $n$  and 4  
\_\_\_\_\_  
\_\_\_\_\_

**13** 6 **less than** the quotient of  $a$  and 4  
\_\_\_\_\_  
\_\_\_\_\_

## Check

Write the operation(s) and algebraic expression.

**14** the **sum** of 17 and  $x$   
\_\_\_\_\_  
\_\_\_\_\_

**15** 8 **less than** the product of 29 and  $y$   
\_\_\_\_\_  
\_\_\_\_\_

**16**  $10m$  \_\_\_\_\_  
**a.** 10 increased by  $m$

**17**  $10 + m$  \_\_\_\_\_  
**b.** 10 times  $m$

## Evaluate Expressions

# SKILL

54

You can evaluate, or find the value of, an expression by using the order of operations.

1. Operate inside parentheses.
2. Evaluate terms with exponents.
3. Multiply and divide from left to right.
4. Add and subtract from left to right.

### Order of Operations

Evaluate  $2b + 3$  for  $b = -4$ .

$$2b + 3 \quad \text{Replace } b \text{ with } -4.$$

↓

$$2 \cdot -4 + 3 \quad \text{Multiply first.}$$

$$\text{Think: } 2 \cdot -4 = -8$$

$$-8 + 3 \quad \text{Then add.}$$

$$\text{Think: } -8 + 3 = -5$$

$$-5$$

So, when  $b = -4$ , the value of  $2b + 3$  is  $-5$ .

Evaluate  $\frac{2a}{3} - 4$  for  $a = 9$ .

$$\frac{2a}{3} - 4 \quad \text{Replace } a \text{ with } 9.$$

↓

$$\frac{2 \cdot 9}{3} - 4$$

$$\text{Multiply first.}$$

$$\text{Think: } 2 \cdot 9 = 18$$

$$\frac{18}{3} - 4 \quad \text{Then divide.}$$

$$\text{Think: } 18 \div 3 = 6$$

$$6 - 4 \quad \text{Finally, subtract.}$$

$$\text{Think: } 6 - 4 = 2$$

$$2$$

So, when  $a = 9$ , the value of  $\frac{2a}{3} - 4$  is  $2$ .

Evaluate  $5(s + 3)^2$  for  $s = 2$ .

$$5(s + 3)^2 \quad \text{Replace } s \text{ with } 2.$$

↓

$$5(2 + 3)^2 \quad \text{Operate inside parentheses.}$$

$$\text{Think: } 2 + 3 = 5$$

$$5 \cdot 5^2 \quad \text{Evaluate } 5^2.$$

$$\text{Think: } 5^2 = 5 \times 5, \text{ or } 25$$

$$5 \cdot 25 \quad \text{Multiply.}$$

$$\text{Think: } 5 \cdot 25 = 125$$

$$125$$

So, when  $s = 2$ , the value of  $5(s + 3)^2$  is  $125$ .

### Try These

Evaluate the expression for the given value of the variable. Write each step.

1  $a = 5$

$$4a - 6 \quad \text{Replace } a \text{ with } 5.$$

↓

$$4 \cdot \square - 6 \quad \text{Multiply.}$$

$$\square - 6 \quad \text{Subtract.}$$

The value of  $4a - 6$  is  $\square$ .

2  $b = 4$

$$\frac{1}{2}b + 1 \quad \text{Replace } b \text{ with } 4.$$

↓

$$\frac{1 \cdot \square}{2} + 1 \quad \text{Multiply first.}$$

$$\frac{\square}{2} + 1 \quad \text{Divide.}$$

$$\square + 1 \quad \text{Add.}$$

The value of  $\frac{1}{2}b + 1$  is  $\square$ .

3  $c = 3$

$$2(10 - c)^2 \quad \text{Replace } c \text{ with } 3.$$

$$2(10 - \square)^2 \quad \text{Operate inside parentheses.}$$

$$\square \quad \text{Evaluate term with exponent.}$$

$$\square \quad \text{Multiply.}$$

The value of  $2(10 - c)^2$  is  $\square$ .

Go to the next slide

## Practice on Your Own

## Skill 54

### Remember:

When you multiply a negative number by a positive number, the product is a negative number.

Evaluate  $(x + 3)^2 + 4xy$ , for  $x = 7$  and  $y = -2$ .

$$\begin{array}{c} (x + 3)^2 + 4xy \\ \downarrow \qquad \qquad \downarrow \\ (7 + 3)^2 + 4 \cdot 7 \cdot -2 \end{array}$$

$$10^2 + 4 \cdot 7 \cdot -2$$

$$100 + 4 \cdot 7 \cdot -2$$

$$100 + 28 \cdot -2$$

$$100 + -56$$

$$44$$

Replace  $x$  with 7 and  $y$  with  $-2$ .

Operate inside parentheses.

Evaluate  $10^2$ .

Multiply.

Multiply.

Add.

The value of  $(x + 3)^2 + 4xy$  is 44.

Evaluate the expression for the given value of the variable. Write each step.

1  $m = 5$

$n = 2$

$7mn - 3$

$7 \cdot \square \cdot \square - 3$

\_\_\_\_\_

\_\_\_\_\_

Replace  $m$  with 5 and  $n$  with 2.

Multiply.

Subtract.

The value of  $7mn - 3$  is \_\_\_\_\_.

2  $p = -8$

$5(p + 10)^2$

$5(\square + 10)^2$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Replace  $p$  with  $-8$ .

Parentheses

Exponents

Multiply.

The value  $5(p + 10)^2$  is \_\_\_\_\_.

3  $t = 24$

$\frac{3t}{4} + 8$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Think:

Multiply.

Divide.

Add.

Value: \_\_\_\_\_

4  $z = -4$

$3(z + 8)^2$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Think:

Parentheses

then

exponents

Value: \_\_\_\_\_

5  $p = 7, g = -3$

$pg + 12$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Value: \_\_\_\_\_

Evaluate the expression for the given value of the variable.

6  $5c^2$  for  $c = 3$

Value: \_\_\_\_\_

7  $-2ab + 3$  for  $a = -1$  and  $b = -6$

Value: \_\_\_\_\_

8  $3(n + 5)^2$  for  $n = 4$

Value: \_\_\_\_\_

### Check

Evaluate the expression for the given value of the variable.

9  $20 + 5d$  for  $d = -2$

Value: \_\_\_\_\_

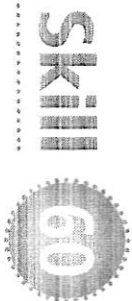
10  $\frac{1}{2}xy + 7$  for  $x = 2$  and  $y = 8$

Value: \_\_\_\_\_

11  $4(t - 1)^2$  for  $t = 7$

Value: \_\_\_\_\_

## Solve Two-Step Equations



Solve each equation by isolating the variable on one side of the equals sign. Add or subtract before you multiply or divide.

**Example 1**  $2y + 3 = -11$  **Think:** What number times 2 added to 3 equals  $-11$ ?

$$2y + 3 - 3 = -11 - 3 \quad \text{Subtract 3 from each side.}$$

$$2y = -14$$

$$\frac{2y}{2} = \frac{-14}{2}$$

$$y = -7$$

Divide each side by 2.

**Check:** Replace  $y$  with  $-7$ .

$$2(-7) + 3 \stackrel{?}{=} -11$$

$$-14 + 3 \stackrel{?}{=} -11$$

$$-11 = -11 \checkmark$$

**Example 2**  $\frac{x}{3} - 5 = 2$

**Think:** What number divided by 3 minus 5 equals 2?

$$\frac{x}{3} - 5 + 5 = 2 + 5 \quad \text{Add 5 to both sides.}$$

$$\frac{x}{3} = 7$$

$$\frac{x}{3} \cdot 3 = 7 \cdot 3$$

$$x = 21$$

Multiply each side by 3.

**Check:** Replace the  $x$  with 21.

$$\frac{21}{3} - 5 \stackrel{?}{=} 2$$

$$2 = 2 \checkmark$$

### Try These

Solve each equation by following the steps.

**1**  $4a + 3 = -5$

$$4a + 3 - 3 = -5 - 3$$

$$4a = \underline{\hspace{2cm}}$$

$$\frac{4a}{4} = \frac{?}{4}$$

$$a = \underline{\hspace{2cm}}$$

**Check:**  $4(?) + 3 = -5$

$$4(\underline{\hspace{2cm}}) + 3 \stackrel{?}{=} -5$$

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

**2**  $\frac{y}{3} + 4 = 7$

$$\frac{y}{3} - 4 - 4 = 7 - 4$$

$$\frac{y}{3} = \underline{\hspace{2cm}}$$

$$y = ? (3)$$

$$y = \underline{\hspace{2cm}}$$

**3** Solve  $3x - y = 7$  for  $x$ .

$$3x - y + y = 7 + y$$

$$3x = \underline{\hspace{2cm}}$$

$$\frac{3x}{3} = \frac{?}{3}$$

$$x = \underline{\hspace{2cm}}$$

Go to the next side.

## Practice on Your Own

# Skill 60

Solve each equation for the variable.

|  |   |   |
|--|---|---|
| <p>Solve <math>2a + 3.5 = 7.5</math>.</p> $2a + 3.5 - 3.5 = 7.5 - 3.5$ $2a = 4$ $a = 2$ <p>Check: <math>2(2) + 3.5 \stackrel{?}{=} 7.5</math></p> $4 + 3.5 \stackrel{?}{=} 7.5$ $7.5 = 7.5 \checkmark$ | <p><b>Think:</b> What number times 2 plus 3.5 equals 7.5?</p> | <p>Solve <math>4y + w = 9</math> for <math>y</math>.</p> $4y + w - w = 9 - w$ $4y = 9 - w$ $\frac{4y}{4} = \frac{9 - w}{4}$ $y = \frac{9 - w}{4}$ |
|--|---|---|

Solve and check each equation.

1  $6b + 11 = 29$

$$6b + 11 - 11 = 29 - 11$$

$$6b = \underline{\hspace{2cm}}$$

$$b = \underline{\hspace{2cm}}$$

Check:  $6(?) + 11 = 29$

$$\underline{\hspace{2cm}} = 29$$

2  $4a + 8 = 20$

$$4a + 8 - 8 = 20 - 8$$

$$4a = \underline{\hspace{2cm}}$$

$$a = \underline{\hspace{2cm}}$$

Check:  $4(?) + 8 = 20$

$$\underline{\hspace{2cm}} = 20$$

3  $3m + 2 = 5x$  for  $m$

$$3m + 2 - 2 = 5x - 2$$

$$3m = \underline{\hspace{2cm}}$$

$$m = \underline{\hspace{2cm}}$$

4  $\frac{x}{6} + 7 = 9$

$$\frac{x}{6} + 7 - 7 = 9 - 7$$

$$\frac{x}{6} = \underline{\hspace{2cm}}$$

$$x = \underline{\hspace{2cm}}$$

Check:  $\frac{?}{6} + 7 = 9$

$$\underline{\hspace{2cm}} = 9$$

5  $\frac{n}{0.4} - 3.5 = 11.5$

$$\frac{n}{0.4} - 3.5 + 3.5 = 11.5 + 3.5$$

$$\frac{n}{0.4} = \underline{\hspace{2cm}}$$

$$n = \underline{\hspace{2cm}}$$

Check:  $\frac{?}{0.4} - 3.5 = 11.5$

$$\underline{\hspace{2cm}} = 11.5$$

6  $6y + 4 = 12x$  for  $y$

$$6y + 4 - 4 = 12x - 4$$

$$6y = \underline{\hspace{2cm}}$$

$$y = \underline{\hspace{2cm}}$$

### Check

Solve each equation.

7  $4x + 7 = -1$

$$x = \underline{\hspace{2cm}}$$

8  $\frac{a}{7} - 4 = 0$

$$a = \underline{\hspace{2cm}}$$

9  $5c + a = 8$  for  $c$

$$c = \underline{\hspace{2cm}}$$



# Skill 65

## Solve Proportions

A proportion is an equation that shows two equivalent ratios.

Solve for  $n$ .  $\frac{3}{8} = \frac{n}{24}$ .

### Step 1

Equal ratios have equal cross products. Find the cross products.

$$\frac{3}{8} = \frac{n}{24}$$

$$3 \times 24$$

$$8 \times n$$

Remember  $8 \times n$  can be written as  $8n$ .

$$8n = 3 \times 24$$

### Step 2

Solve the equation for  $n$ .

$$\frac{3}{8} = \frac{n}{24}$$

$$8n = 3 \times 24$$

$$8n = 72$$

$$\frac{8n}{8} = \frac{72}{8}$$

$$n = 9$$

Multiply  $3 \times 24$  to simplify.

Divide both sides by 8.

### Step 3

Check the solution. Replace  $n$  with 9 to tell if the cross products are equal.

$$\frac{3}{8} = \frac{9}{24}$$

$$8 \times 9 = 3 \times 24$$

$$72 = 72$$

So,  $\frac{3}{8} = \frac{9}{24}$ .

### Try These

Solve for  $n$ .

1  $\frac{2}{12} = \frac{9}{n}$

$$\frac{2}{12} = \frac{9}{n}$$

Write the cross products.

$$2 \times n = 12 \times \square$$

$$2n = \square$$

Simplify.

$$\frac{2n}{2} = \frac{\square}{2}$$

Solve for  $n$ .

$$n = \underline{\hspace{2cm}}$$

2  $\frac{8}{12} = \frac{6}{n}$

$$\frac{8}{12} = \frac{6}{n}$$

Write the cross products.

$$8 \times n = 12 \times \square$$

$$8n = \square$$

Simplify.

$$\frac{8n}{8} = \frac{\square}{8}$$

Solve for  $n$ .

$$n = \underline{\hspace{2cm}}$$

3  $\frac{5}{9} = \frac{n}{27}$

$$\frac{5}{9} = \frac{n}{27}$$

Write the cross products.

$$9 \times n = 5 \times \square$$

$$9n = \square$$

Simplify.

$$\frac{9n}{9} = \frac{\square}{9}$$

Solve for  $n$ .

$$n = \underline{\hspace{2cm}}$$

Go to the next slide.

## Practice on Your Own

## Skill 65

**Think:**

To solve for  $n$  in a proportion:

1. Write the cross products.

2. Simplify, if necessary.

3. Solve for  $n$ .

4. Check the answer.

$$\frac{2}{n} = \frac{16}{48}$$

$$n \times 16 = 2 \times 48$$

$$16n = 96$$

$$\frac{16n}{16} = \frac{96}{16}$$

$$n = 6$$

$$6 \times 16 = 2 \times 48$$

$$96 = 96$$

$$\frac{3}{5} = \frac{21}{n}$$

$$3n = 5 \times 21$$

$$3n = 105$$

$$\frac{3n}{3} = \frac{105}{3}$$

$$n = 35$$

$$3 \times 35 = 5 \times 21$$

$$105 = 105$$

Solve for  $n$ . Check that the cross products are equal.

1  $\frac{4}{5} = \frac{n}{20}$

$$5 \times n = \square \times 20$$

Write the cross products.

$$5n = \square$$

Simplify.

$$\frac{5n}{\square} = \frac{\square}{\square}$$

Solve.

$$n = \underline{\quad}$$

Check.

$$\underline{\quad} = \underline{\quad}$$

2  $\frac{6}{8} = \frac{9}{n}$

$$6 \times n = \square \times 9$$

Write the cross products.

$$6n = \square$$

Simplify.

$$\frac{6n}{\square} = \frac{\square}{\square}$$

Solve.

$$n = \underline{\quad}$$

Check.

$$\underline{\quad} = \underline{\quad}$$

3  $\frac{3}{7} = \frac{n}{21}$

$$7n = \square \times 21$$

$$7n = \square$$

$$\frac{7n}{\square} = \frac{\square}{\square}$$

$$n = \underline{\quad}$$

4  $\frac{9}{15} = \frac{3}{n}$

$$15 \times \square = 9 \times n$$

$$\square = 9n$$

$$\frac{\square}{\square} = \frac{9n}{\square}$$

$$n = \underline{\quad}$$

5  $\frac{7}{10} = \frac{n}{90}$

$$n = \underline{\quad}$$

6  $\frac{14}{n} = \frac{42}{12}$

$$n = \underline{\quad}$$

### Check

7  $\frac{3}{n} = \frac{9}{24}$

$$n = \underline{\quad}$$

8  $\frac{8}{12} = \frac{4}{n}$

$$n = \underline{\quad}$$

9  $\frac{n}{4} = \frac{18}{24}$

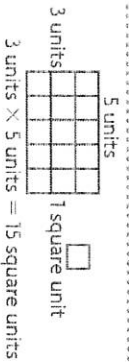
$$n = \underline{\quad}$$

# Area of Squares, Rectangles, Triangles

# SKILL

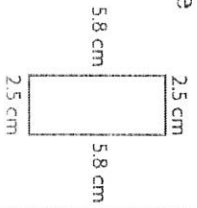
# 85

Area is the number of square units needed to cover a surface.  
Use formulas to find the areas of rectangles, squares, and triangles.



### Area of a Rectangle

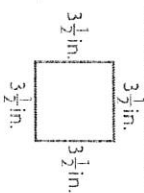
You can use this formula to find the area of a rectangle.



$A = \ell \times w$   
Then: Replace  $\ell$  with 2.5.  
 $A = \ell \times w$  Replace  $w$  with 5.8.  
 $= 2.5 \times 5.8$   
 $= 14.5 \text{ sq cm}$   
So, the area of the rectangle is  $15.5 \text{ cm}^2$ .

### Area of a Square

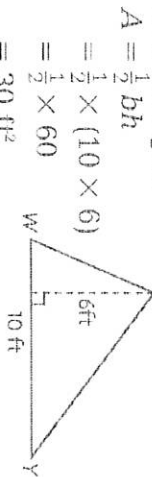
A square is a rectangle with sides all the same length.



So, you can use this formula to find the area of a square:  
Area of square = side  $\times$  side  
 $A = s \times s$  or  $A = s^2$  Replace  $s$  with  $3\frac{1}{2}$ .  
 $= 3\frac{1}{2} \times 3\frac{1}{2}$   
 $= 12\frac{1}{4}$   
So, the area of the square is  $12\frac{1}{4} \text{ in}^2$ .

### Area of a Triangle

Use this formula to find the area of a triangle.



So, the area of triangle WXY is  $30 \text{ ft}^2$ .

### Try These

Find the area.

1  $A = \ell \times w$   
 $= \underline{\quad} \times \underline{\quad}$   
 $= \underline{\quad}$   
Area is  $\underline{\quad}$  in.<sup>2</sup>

2  $A = s \times s$   
 $= \underline{\quad} \times \underline{\quad}$   
 $= \underline{\quad}$   
Area is  $\underline{\quad}$  cm<sup>2</sup>.

3  $A = \frac{1}{2}bh$   
 $= \frac{1}{2} \times (\underline{\quad} \times \underline{\quad})$   
 $= \frac{1}{2} \times \underline{\quad}$   
 $= \underline{\quad}$   
Area is  $\underline{\quad}$  m<sup>2</sup>.

Go to the next slide.

# Practice on Your Own

# Skill 85

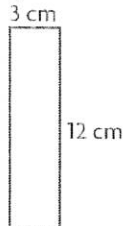
**Think:**

Remember to express the area in square units.

$$A = \ell \times w$$

$$= 3 \times 12$$

$$= 36$$



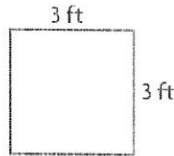
So, the area is 36 cm<sup>2</sup>.

$$A = s^2$$

$$= s \times s$$

$$= 3 \times 3$$

$$= 9$$



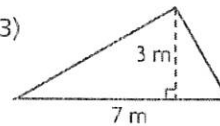
So, the area is 9 ft<sup>2</sup>.

$$A = \frac{1}{2}bh$$

$$= \frac{1}{2}(7 \times 3)$$

$$= \frac{1}{2}(21)$$

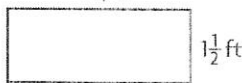
$$= 10\frac{1}{2}$$



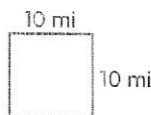
So, the area is 10½ m<sup>2</sup>.

Find the area of each figure.

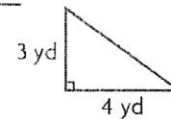
1  $A = \ell \times w$   
 $A = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$   
 $A = \underline{\hspace{1cm}}$



2  $A = s \times s$   
 $A = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$   
 $A = \underline{\hspace{1cm}}$

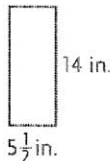


3  $A = \frac{1}{2}bh$   
 $A = \frac{1}{2} \times (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}})$   
 $A = \frac{1}{2} \times \underline{\hspace{1cm}}$   
 $A = \underline{\hspace{1cm}}$

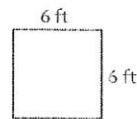


Write the formula. Find the area of each figure.

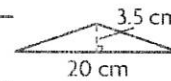
4  $A = \underline{\hspace{1cm}}$   
 $A = \underline{\hspace{1cm}}$



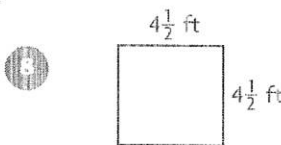
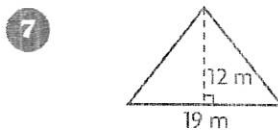
5  $A = \underline{\hspace{1cm}}$   
 $A = \underline{\hspace{1cm}}$



6  $A = \underline{\hspace{1cm}}$   
 $A = \underline{\hspace{1cm}}$

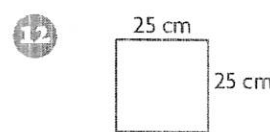
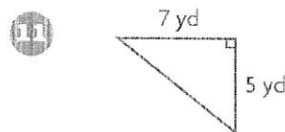
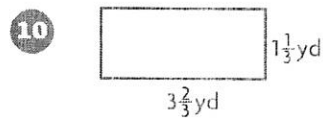


Find the area of each figure.

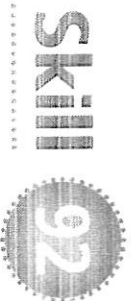


## Check

Find the area of each figure.



## Find Median and Mode



Find the median and the mode for this set of data: 83, 96, 72, 91, 83, 99, 88.

### Find the median

The **median** is the *middle number* when the numbers are arranged in order. If there are two middle numbers, the median is the average of the two numbers.

Arrange the numbers in order from least to greatest.

72, 83, 83, 88, 91, 96, 99

Find the middle score.

72, 83, 83, **88**, 91, 96, 99

So, the median is 88.

### Find the mode

The **mode** is the number that appears *most often*. A set of data may have no mode, or there may be more than one mode.

Identify the number, if any, that occurs most often.

72, **83**, 83, 88, 91, 96, 99

So, the mode is 83.

The median is 88, and the mode is 83.

### Try These

Find the median and the mode for each set of data.

- 1 3, 8, 8, 7, 14

Order the data.

Median: \_\_\_\_\_

Mode: \_\_\_\_\_

- 2 59, 75, 57, 60, 46, 57

Order the data.

Median: \_\_\_\_\_

Mode: \_\_\_\_\_

- 3 1.4, 0.9, 1.4, 2.1, 6.5

Order the data.

Median: \_\_\_\_\_

Mode: \_\_\_\_\_

Go to the next slide.

## Ordered Pairs

## Skill 68

An **ordered pair** is a pair of numbers used to locate a point on a coordinate plane. It is called an ordered pair because the order in which you move on the coordinate plane is important.

|                     | x-coordinate   | y-coordinate   |
|---------------------|--|--|
| <b>Example</b>      | The first number in the pair represents the x-coordinate. It tells you how many units to move right or left on the x-axis. | The second number represents the y-coordinate. It tells you how many units to move <b>up</b> or <b>down</b> on the y-axis. Find the points named by each ordered pair. For each x-coordinate, start at the <b>origin</b> , the point where the x-axis and y-axis intersect (0, 0). |
|                     | (2, 3)   | ordered pair   |
|                     |  | point  |
| <b>Ordered Pair</b> | <b>x-axis</b>  | <b>y-axis</b>  |
| (2, 3)              | move 2 units right   | move 3 units up  |
| (2, -3)             | move 2 units right   | move 3 units down  |
| (-2, 3)             | move 2 units left  | move 3 units up  |
| (-2, -3)            | move 2 units left  | move 3 units down  |

### Try These

Use the coordinate plane above. Complete each statement.

- Find the point for (4, 1).  
 x-axis: move \_\_\_\_\_ units to the \_\_\_\_\_  
 y-axis: move \_\_\_\_\_ units up
- Find the point for (-5, 2).  
 x-axis: move \_\_\_\_\_ units to the \_\_\_\_\_  
 y-axis: move \_\_\_\_\_ units up

- Write the ordered pair for point G.  
 x-axis: move \_\_\_\_\_ units to the right  
 y-axis: move \_\_\_\_\_ units up  
 The ordered pair for point G is \_\_\_\_\_.

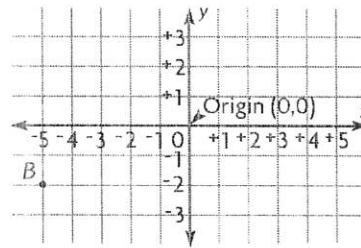
Go to the next slide.

# Practice on Your Own

# Skill 68

**Think:**

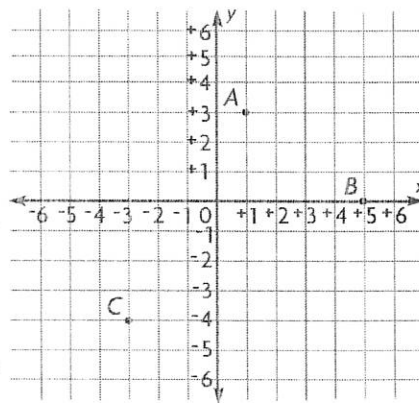
To find the ordered pair for point *B*, start at the origin. Move 5 units to the left, then move 2 units down.



The ordered pair for point *B* is  $(-5, -2)$

Use the coordinate plane at the right. Complete. Write the ordered pair for each point.

- 1 point *A* x-axis: move \_\_\_\_\_ units to the \_\_\_\_\_  
y-axis: move \_\_\_\_\_ units \_\_\_\_\_  
ordered pair: \_\_\_\_\_
- 2 point *B* x-axis: move \_\_\_\_\_ units to the \_\_\_\_\_  
y-axis: move \_\_\_\_\_ units \_\_\_\_\_  
ordered pair: \_\_\_\_\_
- 3 point *C* x-axis: move \_\_\_\_\_ units to the \_\_\_\_\_  
y-axis: move \_\_\_\_\_ units \_\_\_\_\_  
ordered pair: \_\_\_\_\_



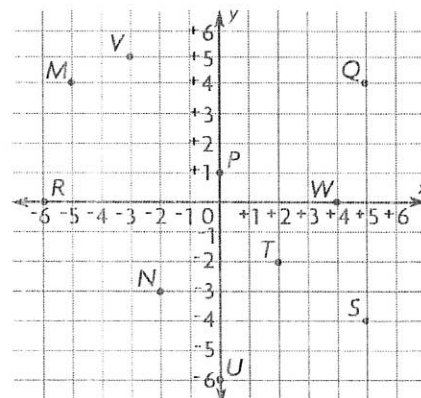
Use the coordinate plane below. Write the ordered pair for each point.

- 4 point *M* ordered pair: \_\_\_\_\_
- 5 point *N* ordered pair: \_\_\_\_\_
- 6 point *P* ordered pair: \_\_\_\_\_
- 7 point *Q* ordered pair: \_\_\_\_\_
- 8 point *R* ordered pair: \_\_\_\_\_
- 9 point *S* ordered pair: \_\_\_\_\_

## Check

Use the coordinate plane below. Write the ordered pair for each point.

- 10 point *T* ordered pair: \_\_\_\_\_
- 11 point *U* ordered pair: \_\_\_\_\_
- 12 point *V* ordered pair: \_\_\_\_\_
- 13 point *W* ordered pair: \_\_\_\_\_



## Practice on Your Own

# Skill 92

**Think:**

The **median** is the middle number or the average of the two middle numbers. The **mode** is the number, if any, that appears most often.

There may be no mode or more than one mode.

Find the median and the mode of this set of data: 96, 83, 91, 83, 94, 72.

72, 83, 83, 91, 94, 96 ← Arrange the data in order.

72, 83, **83**, 91, 94, 96 ← There are two middle numbers. Find the average.

$$83 + 91 = 174$$

$$174 \div 2 = 87$$

The median is 87.

72, **83**, **83**, 91, 94, 96 ← 83 appears most often.

The mode is 83.

Find the median and the mode of each set of data.

- 1 5, 7, 4, 5, 6

Order the data.

\_\_\_\_\_

Median: \_\_\_\_\_

Mode: \_\_\_\_\_

- 2 75, 80, 68, 82, 68

Order the data.

\_\_\_\_\_

Median: \_\_\_\_\_

Mode: \_\_\_\_\_

- 3 86, 95, 78, 90, 90, 82

Order the data.

\_\_\_\_\_

Median: \_\_\_\_\_

Mode: \_\_\_\_\_

- 4 4.4, 3.5, 3.0, 4.8, 4.6, 4.8

Order the data.

\_\_\_\_\_

Median: \_\_\_\_\_

Mode: \_\_\_\_\_

- 5 2.4, 1.8, 3.0, 2.2, 2.0, 2.6, 2.0

Median: \_\_\_\_\_ Mode: \_\_\_\_\_

- 6 45, 35, 35, 55, 75, 25

Median: \_\_\_\_\_ Mode: \_\_\_\_\_

### Check

Find the median and the mode of each set of data.

- 7 95, 83, 95, 98, 87

Median: \_\_\_\_\_ Mode: \_\_\_\_\_

- 8 4.8, 3.6, 4.4, 3.6, 3.8, 4.0

Median: \_\_\_\_\_ Mode: \_\_\_\_\_



## Find Mean

## Skill 93

Find the mean of the set of data: 80, 95, 85, 100, 90.

Find the mean or *average* of a set of data by first finding the sum of the numbers in the set. Then count the number of data items in the set and divide the sum by that number.

### Step 1

Find the sum of the numbers in the set of data. Count the number of data items

$$\begin{array}{r} 80 \\ 95 \\ 85 \\ 100 \\ + 90 \\ \hline 450 \end{array}$$

← sum of the numbers

5 data items

### Step 2

Divide the sum by that number.

$$\begin{array}{r} 90 \\ 5 \overline{)450} \\ \underline{-45} \phantom{0} \\ 00 \\ \underline{-00} \\ 0 \end{array}$$

← mean  
← sum of the numbers

So, the mean of the set of data is 90.

385

### Try These

Find the mean of each set of data.

1) 8, 5, 7, 9, 6

$$\begin{array}{r} 8 \\ 5 \\ 7 \\ 9 \\ + 6 \\ \hline \end{array}$$

5) \_\_\_\_\_

Mean: \_\_\_\_\_

2) 98, 75, 100, 96, 83, 88

$$\begin{array}{r} 98 \\ 75 \\ 100 \\ 96 \\ 83 \\ + 88 \\ \hline \end{array}$$

6) \_\_\_\_\_

Mean: \_\_\_\_\_

3) 8.2, 7.8, 6.2, 8.0, 7.1, 8.3

$$\begin{array}{r} 8.2 \\ 7.8 \\ 6.2 \\ 8.0 \\ 7.1 \\ + 8.3 \\ \hline \end{array}$$

6) \_\_\_\_\_

Mean: \_\_\_\_\_

Go to the next page.

# Practice on Your Own

# Skill 93

**Think:**

To find the mean of a set of data, add all the numbers in the set of data. Then divide the sum by the number of data items.

numbers →  
of data  
items

$$\begin{array}{r} 5.7 \\ 5 \overline{)28.5} \\ \underline{-25} \\ 35 \\ \underline{-35} \\ 0 \end{array}$$

← mean  
← sum of the numbers

Find the mean of each set of data.

1

$$\begin{array}{r} 8, 3, 5, 6, 8 \\ 8 \\ 3 \\ 5 \\ 6 \\ + 8 \\ \hline \end{array} \quad 5 \overline{) \quad}$$

Mean: \_\_\_\_\_

2

$$\begin{array}{r} 85, 70, 80, 93, 82 \\ 85 \\ 70 \\ 80 \\ 93 \\ + 82 \\ \hline \end{array} \quad 5 \overline{) \quad}$$

Mean: \_\_\_\_\_

3

$$\begin{array}{r} 9.5, 10.0, 16.4, 8.8, 12.3 \\ 9.5 \\ 10.0 \\ 16.4 \\ 8.8 \\ + 12.3 \\ \hline \end{array} \quad 5 \overline{) \quad}$$

Mean: \_\_\_\_\_

4

46, 85, 79, 27, 13

Sum of the numbers: \_\_\_\_\_

Number of data items: \_\_\_\_\_

Mean: \_\_\_\_\_

5

79, 100, 25, 16, 43, 13

Sum of the numbers: \_\_\_\_\_

Number of data items: \_\_\_\_\_

Mean: \_\_\_\_\_

6

9.3, 8.2, 10, 7.7, 10, 10

Sum of the numbers: \_\_\_\_\_

Number of data items: \_\_\_\_\_

Mean: \_\_\_\_\_

7

78, 94, 31, 83, 59

Mean: \_\_\_\_\_

8

81, 83, 85, 87, 89, 91

Mean: \_\_\_\_\_

9

17.7, 12, 9.6, 18.7, 9.2, 8.4

Mean: \_\_\_\_\_

**Check**

Find the mean of each set of data.

10

8, 4, 9, 3, 5, 13

Mean: \_\_\_\_\_

11

93, 78, 97, 84, 98

Mean: \_\_\_\_\_

12

7.9, 9.5, 8, 6.6, 17.9, 12.5

Mean: \_\_\_\_\_

**28**

8.  $\frac{5}{3}$   
9.  $\frac{17}{3}$

CHECK

10.  $\frac{1}{4}$   
11.  $\frac{3}{1}$   
12.  $\frac{4}{3}$

**29**

TRY THESE

1. 24, 24  
2. 35, 35  
3. 68, 68  
4. 81, 81

PRACTICE

1. 19, 19  
2. 65, 65  
3. 82, 82  
4. 45, 45  
5. 56, 56  
6. 94, 94

CHECK

7. 23  
8. 64  
9. 87

**30**

TRY THESE

1. 30, 30, 0.3  
2. 9, 9, 0.09  
3. 40, 40, 40%  
4. 1, 25, 125, 125%

PRACTICE

1. 37, 37, 0.37  
2. 60, 60, 0.6  
3. 2, 2, 0.02  
4. 75, 75, 0.75  
5. 55, 55, 55%  
6. 8, 8, 8%  
7. 40, 40, 40%  
8. 2, 45, 245, 245%  
9. 0.99

10. 0.2  
11. 0.05  
12. 1

13. 86%  
14. 1%  
15. 30%  
16. 210%

CHECK

17. 0.03  
18. 0.42  
19. 70%  
20. 150%

**31**

TRY THESE

1. 25, 25, 75, 75,  
0.75, 75%

2. 20, 20, 20, 20,  
0.20, 20%

3. 00, 90, 0, 90, 0.90,  
90%

4. 00, 25, 50, 50, 0,  
12, 0.12, 12%

PRACTICE

1. 50, 50, 50, 50,  
0.50, 50%

2. 20, 20, 60, 60,  
0.60, 60%

3. 5, 5, 30, 30, 0.30,  
30%

4. 00, 200, 200, 200,  
0, 55, 0.55, 55%

5. 00, 18, 20, 18, 2,  
66, 0.6, 66.6%

6. 000, 48, 20, 16,  
40, 40, 0, 625,  
0.625, 62.5%

7. 0.80, 80%  
8. 0.84, 84%

9. 0.125, 12.5%

**ANSWERS**

**35**

TRY THESE

- 4
- 4, 2, 8
- 4, 8, 16
- 4, 8, 16, 32

PRACTICE

- 16, 64
- 25, 125, 625
- 9, 27, 81, 243
- 100, 1,000, 10,000
- 81, 729
- 36, 216
- 125
- 343
- 1,024
- 512
- 6,561
- 1,331

CHECK

- 4,096
- 1,000
- 64

**36**

TRY THESE

- 16, 16, 24, 27
- 10, 20, 30, 40, 50, 60

PRACTICE

- 32, 36
- 40, 45
- 48, 54
- 15, 18
- 10, 12
- 12, 16
- 50, 60, 70, 80
- 33, 44, 55, 66
- 48, 60, 72, 84
- 56
- 90
- 99
- 96

CHECK

- 28
- 36
- 30
- 77
- 50
- 63
- 55
- 132

**37**

TRY THESE

- 70, 700, 7,000, 70,000
- 9.2, 0.92, 0.092, 0.0092

PRACTICE

- 50; 500; 5,000
- 120; 1,200; 12,000
- 1,520; 15,200; 152,000
- 0.3; 0.03; 0.003
- 2.4; 0.24; 0.024
- 57.4; 0.574; 0.0574
- 170,000; 4; right
- 0.0017; 4; left
- 700; 2; right
- 0.068; 3; left
- 90; 1; right
- 1.18; 2; left
- 98,000
- 0.0034
- 12,400

CHECK

- 28,000
- 2,500
- 1,360
- 0.018
- 1.97
- 0.14

**Answers**

38

TRY THESE

1. 8, 8, 8
2. 9, 9, 9
3. 11, 11, 11
4. 7, 7, 7

PRACTICE

1. 28, 4
2. 63, 7
3. 40, 10
4. 48, 4
5. 30, 6
6. 49, 7
7. 36, 12
8. 90, 10
9. 7
10. 11
11. 6
12. 6
13. 4
14. 4
15. 11
16. 12
17. 4
18. 8
19. 9
20. 8
21. 7
22. 9
23. 6
24. 4

38

CHECK

25. 7
26. 2
27. 11
28. 5

39

TRY THESE

1. 24, 2, 6 r 2
2. 12, 30, 24, 6, 12<sup>1</sup><sub>2</sub>
3. 00, 24, 27, 24,  
30, 24, 60, 60, 0,  
22, 25

PRACTICE

1. 45, 2, 9 r 2
2. 11, 80, 77, 3,  
17 r 3
3. 16, 34, 32, 21,  
16, 5, 121 r 5
4. 32, 2, 8<sup>1</sup><sub>2</sub>
5. 32, 84, 80, 4, 25<sup>1</sup><sub>4</sub>
6. 111, 189, 185, 4,  
35<sup>3</sup><sub>37</sub>
7. 00, 24, 30, 28,  
20, 20, 0, 6, 75
8. 75, 33, 30, 30, 0,  
52, 2
9. 0, 36, 189, 180,  
90, 72, 180, 180,  
0, 152, 5

CHECK

10. 12 r 5
11. 15<sup>1</sup><sub>3</sub>
12. 20, 5

40

TRY THESE

1. 71, 62
2. 20, 7
3. 5, 076, 2, 1, 3
4. 9, 4

PRACTICE

1. 95, 63
2. 0, 868, 2, 1, 3
3. 3, 7
4. 13, 418
5. 75, 63
6. 5, 375
7. 9, 225
8. 22, 57
9. 0, 425

CHECK

10. 18, 41
11. 3, 6
12. 45, 41
13. 6, 484
14. 3, 075
15. 6, 657

ANSWERS

41

TRY THESE

- 4, 40, 400
- 0.6, 6, 60
- 15, 150, 1,500

PRACTICE

- 5, 50, 500
- 1.8, 18, 180
- 76, 760, 7,600
- 9, 1
- 20, 2
- 1,900, 3
- 240, 2
- 5,080, 3
- 6.1, 1
- 5,700
- 12.3
- 7

CHECK

- 89
- 40
- 538
- 16
- 8,390
- 270

42

TRY THESE

- $\frac{9}{10}$
- $\frac{1}{2}$
- $\frac{1}{9}$
- 4

PRACTICE

- $\frac{2}{8}$ ,  $\frac{3}{8}$ ,  $\frac{5}{8}$
- $\frac{15}{36}$ ,  $\frac{28}{36}$ ,  $\frac{43}{36}$  or  $\frac{7}{36}$
- $\frac{12}{15}$ ,  $\frac{10}{15}$ ,  $\frac{2}{15}$
- $\frac{22}{30}$ ,  $\frac{18}{30}$ ,  $\frac{2}{15}$
- $\frac{3 \times 1}{5 \times 6} = \frac{3}{30}$ ,  $\frac{1}{10}$
- $\frac{5 \times 3}{8 \times 10} = \frac{15}{80}$ ,  $\frac{3}{16}$
- $\frac{4 \times 3}{9 \times 1} = \frac{12}{9}$ ,  $\frac{4}{3}$
- $\frac{9 \times 6}{10 \times 3} = \frac{54}{30}$ ,  $\frac{9}{5}$

CHECK

- $\frac{1}{6}$
- $\frac{5}{16}$
- $\frac{1}{7}$
- $\frac{9}{20}$

43

TRY THESE

- yes,  $\frac{4}{5}$ , yes
- yes,  $\frac{2}{7}$ , yes
- yes,  $\frac{4}{8}$ , no,  $\frac{4 \div 4}{8 \div 4} = \frac{1}{2}$

PRACTICE

- yes,  $\frac{2}{6} + \frac{3}{6} = \frac{5}{6}$ , yes
- yes,  $4 - 3 = 1$ , yes
- yes,  $\frac{7}{10} + \frac{1}{10} = \frac{8}{10}$ , no,  $\frac{8 \div 2}{10 \div 2} = \frac{4}{5}$
- $\frac{3}{5}$ , yes
- $\frac{4}{8}$ , no,  $\frac{4 \div 4}{8 \div 4} = \frac{1}{2}$
- $\frac{2}{10}$ , no,  $\frac{2 \div 2}{10 \div 2} = \frac{1}{5}$
- $\frac{2}{7}$
- $\frac{4}{9}$
- 1, 2
- 1

43

CHECK

- $\frac{1}{3}$
- $\frac{7}{8}$
- $\frac{1}{3}$
- $\frac{4}{5}$

Answers

50

TRY THESE

- 8, 17
- 6, 24
- $a = 2$

PRACTICE

- 10, 13
- 6, 12
- 6, 42
- 3, 9
- 17
- 1
- 150
- 40
- $c = 4$
- $a = 2$
- $p = 6$
- $b = 7$
- $y = 1$
- $c = 11$

CHECK

- 50
- 0
- 7

51

TRY THESE

- $8 \div 2 = 4$ ;  $3 + 4 = 7$ ; 7
- $5 + 3 = 8$ ;  $8 \times 7 = 56$ ; 56

3.  $12 - 3 = 9$ ;  $\frac{9}{3} = 3$ ;  $3 \times 8 = 24$ ; 24

4.  $10 - 6 = 4$ ;  $5 \times 5 = 25$ ;  $25 - 4 = 21$ ; 21

PRACTICE

- $10 \div 5 = 2$ ;  $7 + 2 = 9$ ; 9
- $18 - 6 = 12$ ;  $\frac{12}{4} = 3$ ;  $3 \times 2 = 6$ ; 6
- $15 - 6 = 9$ ;  $4 \times 4 = 16$ ;  $\frac{9}{3} = 3$ ;  $3 + 16 = 19$ ; 19
- $5^2 \div 5 = 25 \div 5 = 5$
- $36 \div 3^2 = 36 \div 9 = 4$
- $\frac{9}{3} \times 8 = 3 \times 8 = 24$

51

CHECK

- $10 + 5 = 15$
- $4^2 - 8 = 16 - 8 = 8$
- $\frac{9}{9} + 6^2 = 1 + 36 = 37$

52

TRY THESE

- multiply  $\frac{1}{2}$  by 6, multiply 3 by 3, 9

- multiply 2 by

3.14, multiply

6.28 by 14, 87.92

- add 4 and 7, multiply  $\frac{1}{2}$  by 8 then multiply 4 by 11, 44

PRACTICE

- square 6, 54
- add 2 and 6, 40
- square 4, 150.72
- square 5, 235.5
- multiply  $\frac{1}{2}$  by 6, 17.25
- add 3 and 7, 80

CHECK

- 47.1
- 252
- 66

ANSWERS

53

TRY THESE

1. addition;  $5 + t$   
or  $t + 5$
2. subtraction;  
 $12 - p$

PRACTICE

1. multiplication;  
 $2m$
2. subtraction;  
 $x - 8$
3. division;  $\frac{24}{c}$  or  
 $24 \div c$
4. addition;  $4 + s$   
or  $s + 4$
5. multiplication;  
 $5b$
6. subtraction;  
 $r - 11$
7.  $d$
8.  $a$
9.  $b$
10.  $c$
11. addition, multi-  
plication,  $3 + 8p$   
or  $8p + 3$
12. subtraction,  
multiplication,  
 $7n - 4$

53

13. division,  
subtraction

$\frac{a}{4} - 6$

CHECK

14. addition,  $17 + x$   
or  $x + 17$
15. multiplication,  
subtraction,  
 $29y - 8$

16.  $b$
17.  $a$

54

TRY THESE

1. 5; 20 - 6; 14, 14
2. 4; 4; 2 + 1; 3, 3
3.  $3; 2 \cdot 7^2$

$2 \cdot 49; 98; 98$

PRACTICE

1. 5, 2;  $70 - 3$ ;  
 $67; 67$
2.  $-8, 5 \cdot 2^2$ ;  
 $5 \cdot 4; 20; 20$
3.  $\frac{3 \times 24}{4} + 8$ ;  
 $\frac{72}{4} + 8$ ;  
 $18 + 8; 26$
4.  $3(-4 + 8)^2$ ;  
 $3 \cdot 4^2; 3 \cdot 16; 48$
5.  $7 \cdot -3 + 12$ ;  
 $-21 + 12; -9$
6. 45
7. -9
8. 243

CHECK

9. 10
10. 15
11. 144

55

TRY THESE

1.  $3x, -x, 7, -4$ ,  
 $2x + 3$
2.  $2a, 5, -7, 2a - 2$
3.  $-7x, -2x, 8y, 4$ ,  
 $9, -9x + 8y + 13$

PRACTICE

1.  $6n, -3n, 2$ ,  
 $3n + 2$
2.  $5y, y, 4, -6$ ,  
 $6y - 2$
3.  $2a, -a, -5b, -b$ ,  
 $a - 6b$
4.  $-y, 4y, 26, 4$ ,  
 $3y + 30$
5.  $-x, -4x, 7y, 6$ ,  
 $-5x + 7y + 6$
6.  $3a, -4b, -b$ ,  
 $6, 7, 3a - 5b$   
 $+ 13$

CHECK

7.  $7y + 5$
8.  $2a + 6b + 2$
9.  $-7n + 5$

ANSWERS



58

TRY THESE

- 7, 7, 7, 16, 16
- 10, 10, 10, 15, 15
- 4, 4, 4, 28, 28
- 80, 80, 80, 10, 10

PRACTICE

- 4, 4, 4, 16, 16
  - 36, 36, 36, 12, 12
  - 18, 18, 18, 10, 10
  - 2, 2, 2, 14, 14
  - 0.4, 0.4, 0.4, 1.2, 1.2
  - 7.5, 7.5, 7.5, 1.5, 1.5
  - 1.8
  - 0.6
  - 12.6
- CHECK
- 14.5
  - 8
  - 63

59

TRY THESE

- $1n = 7$   
 $n = 7$   
Check 7; 14
- $1t = 70$   
 $t = 70$   
Check 70; 3.5

PRACTICE

- $6 \div \frac{2}{3} = 1c$   
 $6 \cdot \frac{3}{2} = c$   
 $9 = c$   
Check 9; 6
  - $15 \div \frac{3}{4} = 1y$   
 $15 \cdot \frac{4}{3} = y$   
 $20 = y$   
Check 20; 15
  - $4; n = 4$
  - $12; 6 = h$
  - $0.2; x = 25$
  - $0.3; b = 70$
  - 5
  - 30
  - 8
  - 13
- CHECK
- 20
  - 54
  - 12
  - 13

60

TRY THESE

- 8, -2, -2, -5, -5
- 3, 9
- $7 + y; x = \frac{7+y}{3}$

PRACTICE

- 18, 3
  - 12, 3
  - $5x - 2;$   
 $m = \frac{5x-2}{3}$
  - 2, 12
  - 15, 6
  - $12x - 4;$   
 $y = \frac{12x-4}{6}$
- CHECK
- 2
  - 28
  - $c = \frac{8-a}{5}$

61

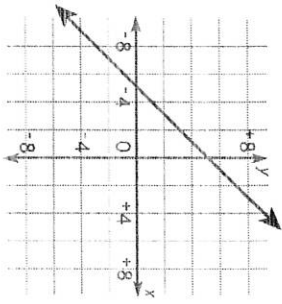
PRACTICE

For 1. to 7. Check number lines

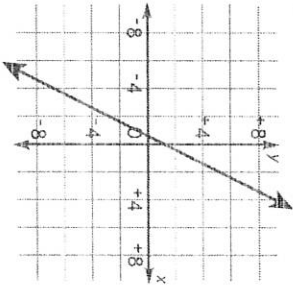
- left
- positive, 0, right
- negative, 0, left
- right
- negative, left
- positive, right
- negative, left
- check number lines
- check number lines
- check number lines
- check number lines

ANSWERS

2.

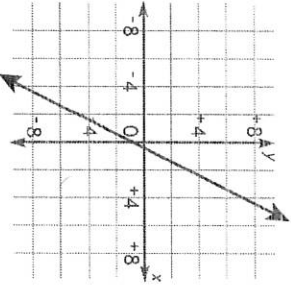


3.



CHECK

4.



TRY THESE

- 9; 108; 108;  
54

- 6; 72; 72; 9

- 27; 135; 135; 15

PRACTICE

- 4; 80; 5;  $\frac{80}{5}$ ; 16;

Check:  $80 = 80$

- 8; 72; 6;  $\frac{72}{6}$ ; 12;

Check:  $72 = 72$

- 3; 63; 7;  $\frac{63}{7}$ ; 9

- 3; 45;  $\frac{45}{9}$ ; 9; 5

- 5; 63

- 6; 4

CHECK

- 7; 8

- 8; 6

- 9; 3

TRY THESE

- yards, 3, 18

- inches, 12, 6

- meters, 100, 400

- centimeters,  
100, 7

PRACTICE

- Multiply; 7,040

- Multiply; 80

- Multiply; 21

- Divide; 4

- Divide; 0.007

- Divide; 3

- 7; 24

- 6,000

- 4,000

- 5

- 3

- 9

- 45

- 300

- 5

- 9

CHECK

- 8,800

- 830

- 4

- 0.004

# Answers

67

TRY THESE

- 10; 11
- 14; 3.3

PRACTICE

- 21; 42
- 4; 6
- 10.1 + 11.8, 21.9;  
12.3 + 11.8, 24.1;  
14.1 + 11.8, 25.9
- 5.9 - 3.5, 2.4;  
13.1 - 3.5, 9.6;  
15.6 - 3.5, 12.1
- 15 • 5, 75;  
24 • 5, 120;  
37 • 5, 185
- 84 ÷ 12, 7;  
108 ÷ 12, 9;  
132 ÷ 12, 11

CHECK

- 29.8 - 6.7, 23.1;  
42.9 - 6.7, 36.2;  
58.3 - 6.7, 51.6
- 3 • 14, 42; 7 • 14,  
98;  
11 • 14, 154

68

TRY THESE

- 4; 1; F
- 5; 2; E
- 6; 5; (6, 5)

PRACTICE

- 1; right; 3; up;  
(1, 3)
- 5; right; 0; up;  
(5, 0)
- 3; left; 4; down;  
(-3, -4)
- (-5, 4)
- (-2, -3)
- (0, 1)
- (5, 4)
- (-6, 0)
- (5, -4)

CHECK

- (2, -2)
- (0, -6)
- (-3, 5)
- (4, 0)

69

TRY THESE

- 1, 4, (1, 4)
- 6, 5, (6, 5)
- Video Store

PRACTICE

- 1, 5, (1, 5)
- 2, 1, (2, 1)
- 3, 7, (3, 7)
- (5, 4)
- (6, 9)
- (7, 3)

CHECK

- (1, 6)
- (2, 3)
- (4, 5)
- (6, 7)

70

TRY THESE

- 80, 90, up, 80,  
88
- 90, 100, up, 90,  
94
- 0, -10, down,  
0, -6
- 20, 30, up, 20,  
22

PRACTICE

- 10
- 0, 10, down, 10,  
8
- 10, -20, up,  
-20, -18
- 20, 30, up, 20,  
22
- 0, 4
- 20, -18
- 10, 12
- 20, 22
- 8
- 62
- 12
- 30
- 10
- 0
- 20

ANSWERS

84

TRY THESE

1. 2, rectangle, 4, rectangle, 6
2. 2, hexagon, 6, rectangle, 8

PRACTICE

1. 1, triangle, 3, triangle, 4, triangular pyramid
2. 1, rectangle, 4, triangle, 5, rectangular pyramid
3. 2, 5, 7, pentagonal prism
4. 1, 3, 4, triangular pyramid

CHECK

- 1, 5, 6, pentagonal pyramid
- 2, 4, 6, rectangular prism

85

TRY THESE

1.  $15\frac{1}{2}$ ;  $6\frac{1}{2}$ ;  $100\frac{3}{4}$ ;  $100\frac{3}{4}$
2. 1.5; 1.5; 2.25; 2.25
3. 11; 4; 44; 22; 22

PRACTICE

1.  $3\frac{3}{4}$  ft;  $1\frac{1}{2}$  ft;  $5\frac{5}{8}$  ft
2. 10, 10; 100 mi<sup>2</sup>
3. 4, 3; 12; 6 yd<sup>2</sup>
4.  $A = \ell \times w$  or  $5\frac{1}{2} \times 14$ ; 77 in<sup>2</sup>
5.  $A = s \times s$  or  $6 \times 6$ ; 36 ft<sup>2</sup>
6.  $A = \frac{1}{2}bh$ ;  $\frac{1}{2} \times (20 \times 3.5)$ ;  $\frac{1}{2} \times 70$ ; 35 cm<sup>2</sup>
7.  $A = 114$  m<sup>2</sup>
8.  $A = 20\frac{1}{4}$  ft<sup>2</sup>
9.  $A = 510$  cm<sup>2</sup>

CHECK

10.  $A = 4\frac{8}{9}$  yd<sup>2</sup>
11.  $A = 17.5$  yd<sup>2</sup>
12.  $A = 625$  cm<sup>2</sup>

86

TRY THESE

1. 5, 25, 78.5
2.  $7.49$ ;  $\frac{22}{7} \times \frac{49}{1}$ ;  $1,078$  or  $154\frac{7}{7}$
3. 9 cm, 9, 81, 254.34

PRACTICE

1. 6, 36, 113.04 cm<sup>2</sup>, 113 cm<sup>2</sup>
2. 14, 196,  $\frac{22}{7} \times \frac{196}{1}$ ;  $\frac{4,312}{7}$ ; 616 yd<sup>2</sup>, 616 yd<sup>2</sup>
3. 4.5 m, 4.5, 20.25, 63,585 m<sup>2</sup>, 64 m<sup>2</sup>
4. 8,  $A \approx 3.14 \times 64$ ;  $A \approx 200.96$  m<sup>2</sup>,  $A \approx 201$  m<sup>2</sup>
5. 15<sup>2</sup>,  $A \approx \frac{22}{7} \times 225$ ;  $A \approx \frac{4,950}{7}$ ;  $A \approx 707.14$  ft<sup>2</sup>,  $A \approx 707$  ft<sup>2</sup>
6. 10 m, 10,  $A \approx 3.14 \times 100$ ,  $A \approx 314.00$  m<sup>2</sup>,  $A \approx 314$  m<sup>2</sup>
7.  $A \approx 13$  in<sup>2</sup>

86

8.  $A \approx 95$  cm<sup>2</sup>
9.  $A \approx 50$  yd<sup>2</sup>

CHECK

10.  $A \approx 452$  m<sup>2</sup>
11.  $A \approx 1,385$  in<sup>2</sup>
12.  $A \approx 177$  cm<sup>2</sup>

ANSWERS

91

TRY THESE

- 2, 3, 6, 8, 9; 9;  
2; 7
- 19, 28, 37, 52;  
52; 19; 33
- 13, 25, 32, 54,  
60, 71; 71; 13; 58

PRACTICE

- 4, 6, 7, 8, 10; 10;  
4; 6
  - 65, 77, 79, 81,  
88; 88; 65; 23
  - 54, 98, 100,  
102; 48
  - 137, 137, 140,  
156, 195; 58
  - 56
  - 31
- CHECK
- 20
  - 37

92

TRY THESE

- 3, 7, 8, 8, 14, 8; 8
- 46, 57, 57, 59,  
60, 75; 58; 57
- 0.9, 1.4, 1.4, 2.1,  
6.5; 1.4; 1.4

PRACTICE

- 4, 5, 5, 6, 7; 5; 5
  - 68, 68, 75, 80,  
82; 75; 68
  - 78, 82, 86, 90,  
90, 95; 88; 90
  - 3.0, 3.5, 4.4, 4.6,  
4.8, 4.8; 4.5; 4.8
  - 2.2, 2.0
  - 40, 35
- CHECK
- 95, 95
  - 3.9, 3.6

93

TRY THESE

- 35,  $5\overline{)35}$ , 7  
90
- 540,  $6\overline{)540}$ , 90  
7.6
- $45.6, 6\overline{)45.6}, 7.6$

PRACTICE

- $30, 5\overline{)30}, 6$   
82
  - 410,  $5\overline{)410}, 82$   
11.4
  - $57.0, 5\overline{)57.0},$   
11.4
  - 250, 5, 50
  - 276, 6, 46
  - 55.2, 6, 9.2
  - 69
  - 86
  - 12.6
- CHECK
- 7
  - 90
  - 10.4

94

TRY THESE

- giraffe
- 40 years
- 10 years

PRACTICE

- 5 grams
  - pencil
  - finger ring and  
paper clip
  - 1 gram
  - pencil
  - Possible  
answers: pencil  
and paper clip;  
finger ring and  
earring
- CHECK
- paper clip
  - 2 grams
  - earring and  
paper clip

# Answers