

# Fluency Table of Contents

	Page		Page
<b>Rational and Irrational Numbers</b>		<b>Scientific Notation</b>	
<b>Skills Practice</b> (Forms A and B)		<b>Skills Practice</b> (Forms A and B)	
Evaluate square roots and cube roots. ....	336	Write the numbers in scientific notation. ....	356
Solve equations of the form $x^2 = p$ and $x^3 = p$ . ....	338	Perform operations with numbers written in scientific notation. ....	358
Approximate irrational numbers. ....	340	<b>Solutions to Linear Equations</b>	
Approximate expressions with irrational numbers. ....	342	<b>Skills Practice</b> (Forms A and B)	
Rewrite a repeating decimal as a fraction. ....	344	Solve and tell how many solutions. ....	360
<b>Repeated Reasoning</b>		Use the distributive property to solve and tell how many solutions. ....	362
Find patterns in repeating decimals. ....	346	<b>Systems of Equations</b>	
<b>Integer Exponents</b>		<b>Skills Practice</b> (Forms A and B)	
<b>Skills Practice</b> (Forms A and B)		Solve systems of equations using substitution. ....	364
Simplify expressions with exponents. ....	347	Solve systems of equations using any method. ....	366
Simplify more expressions with exponents. ....	349	Solve systems of equations involving fractions and decimals. ....	368
<b>Repeated Reasoning</b>		<b>Linear Functions</b>	
Find patterns in products of powers with the same base. ....	351	<b>Skills Practice</b> (Forms A and B)	
Find more patterns in products of powers with the same base. ....	352	Find the slope of the line through two given points. ....	370
Find patterns in quotients of powers with the same base. ....	353	Determine the rate of change and the initial value of the line through two given points. ....	372
Find more patterns in quotients of powers with the same base. ....	354	Identify another point on the line given one point and the slope. ....	374
Find patterns in products of powers with different bases. ....	355		



# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Evaluate square roots and cube roots. Simplify each expression.

Form A

1  $\sqrt{16} =$  \_\_\_\_\_

2  $\sqrt[3]{0} =$  \_\_\_\_\_

3  $\sqrt{1} =$  \_\_\_\_\_

4  $\sqrt{64} =$  \_\_\_\_\_

5  $\sqrt{144} =$  \_\_\_\_\_

6  $\sqrt{169} =$  \_\_\_\_\_

7  $\sqrt[3]{8} =$  \_\_\_\_\_

8  $\sqrt{100} =$  \_\_\_\_\_

9  $\sqrt{49} =$  \_\_\_\_\_

10  $\sqrt[3]{27} =$  \_\_\_\_\_

11  $\sqrt[3]{125} =$  \_\_\_\_\_

12  $\sqrt{2,500} =$  \_\_\_\_\_

13  $\sqrt[3]{64} =$  \_\_\_\_\_

14  $\sqrt{900} =$  \_\_\_\_\_

15  $\sqrt{36} =$  \_\_\_\_\_

16  $\sqrt{441} =$  \_\_\_\_\_

17  $\sqrt[3]{1,000} =$  \_\_\_\_\_

18  $\sqrt{25} =$  \_\_\_\_\_

# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Evaluate square roots and cube roots. Simplify each expression.

Form B

1  $\sqrt{9} =$  \_\_\_\_\_

2  $\sqrt[3]{1} =$  \_\_\_\_\_

3  $\sqrt{0} =$  \_\_\_\_\_

4  $\sqrt{81} =$  \_\_\_\_\_

5  $\sqrt{121} =$  \_\_\_\_\_

6  $\sqrt[3]{1,000} =$  \_\_\_\_\_

7  $\sqrt[3]{27} =$  \_\_\_\_\_

8  $\sqrt{25} =$  \_\_\_\_\_

9  $\sqrt{4} =$  \_\_\_\_\_

10  $\sqrt{225} =$  \_\_\_\_\_

11  $\sqrt{400} =$  \_\_\_\_\_

12  $\sqrt[3]{216} =$  \_\_\_\_\_

13  $\sqrt{64} =$  \_\_\_\_\_

14  $\sqrt{1,600} =$  \_\_\_\_\_

15  $\sqrt{625} =$  \_\_\_\_\_

16  $\sqrt[3]{8} =$  \_\_\_\_\_

17  $\sqrt[3]{512} =$  \_\_\_\_\_

18  $\sqrt{961} =$  \_\_\_\_\_



# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Solve equations of the form  $x^2 = p$  and  $x^3 = p$ .

Form A

1  $x^2 = 1$ ;  $x =$  \_\_\_\_\_

2  $x^2 = 49$ ;  $x =$  \_\_\_\_\_

3  $x^3 = 8$ ;  $x =$  \_\_\_\_\_

4  $x^2 = 100$ ;  $x =$  \_\_\_\_\_

5  $x^2 = \frac{4}{9}$ ;  $x =$  \_\_\_\_\_

6  $x^2 = 144$ ;  $x =$  \_\_\_\_\_

7  $x^3 = \frac{1}{8}$ ;  $x =$  \_\_\_\_\_

8  $x^2 = \frac{81}{100}$ ;  $x =$  \_\_\_\_\_

9  $x^2 = 16$ ;  $x =$  \_\_\_\_\_

10  $x^3 = 64$ ;  $x =$  \_\_\_\_\_

11  $x^2 = 900$ ;  $x =$  \_\_\_\_\_

12  $x^2 = \frac{1}{49}$ ;  $x =$  \_\_\_\_\_

13  $x^3 = 125$ ;  $x =$  \_\_\_\_\_

14  $x^2 = \frac{36}{49}$ ;  $x =$  \_\_\_\_\_

15  $x^2 = \frac{9}{25}$ ;  $x =$  \_\_\_\_\_

16  $x^2 = 2,500$ ;  $x =$  \_\_\_\_\_

17  $x^3 = \frac{1}{27}$ ;  $x =$  \_\_\_\_\_

18  $x^2 = 36$ ;  $x =$  \_\_\_\_\_

# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Solve equations of the form  $x^2 = p$  and  $x^3 = p$ .

Form B

1  $x^2 = 121$ ;  $x =$  \_\_\_\_\_

2  $x^3 = 1,000$ ;  $x =$  \_\_\_\_\_

3  $x^2 = \frac{25}{49}$ ;  $x =$  \_\_\_\_\_

4  $x^2 = 25$ ;  $x =$  \_\_\_\_\_

5  $x^2 = \frac{9}{64}$ ;  $x =$  \_\_\_\_\_

6  $x^3 = 1$ ;  $x =$  \_\_\_\_\_

7  $x^2 = 9$ ;  $x =$  \_\_\_\_\_

8  $x^3 = \frac{27}{64}$ ;  $x =$  \_\_\_\_\_

9  $x^2 = 0$ ;  $x =$  \_\_\_\_\_

10  $x^2 = \frac{121}{144}$ ;  $x =$  \_\_\_\_\_

11  $x^2 = 1,600$ ;  $x =$  \_\_\_\_\_

12  $x^3 = \frac{64}{125}$ ;  $x =$  \_\_\_\_\_

13  $x^2 = 441$ ;  $x =$  \_\_\_\_\_

14  $x^2 = \frac{49}{81}$ ;  $x =$  \_\_\_\_\_

15  $x^2 = 225$ ;  $x =$  \_\_\_\_\_

16  $x^3 = 216$ ;  $x =$  \_\_\_\_\_

17  $x^2 = 625$ ;  $x =$  \_\_\_\_\_

18  $x^2 = \frac{1}{9}$ ;  $x =$  \_\_\_\_\_



# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Approximate irrational numbers.

Form A

Write the two consecutive whole numbers that the given number is between.

1  $\sqrt{5}$  \_\_\_\_\_

2  $\sqrt{10}$  \_\_\_\_\_

3  $\sqrt{8}$  \_\_\_\_\_

4  $\sqrt{28}$  \_\_\_\_\_

5  $\sqrt{23}$  \_\_\_\_\_

6  $\sqrt{84}$  \_\_\_\_\_

7  $\sqrt{45}$  \_\_\_\_\_

8  $\sqrt{29}$  \_\_\_\_\_

9  $\sqrt{70}$  \_\_\_\_\_

Approximate to the nearest whole number.

10  $\sqrt{5} \approx$  \_\_\_\_\_

11  $\sqrt{10} \approx$  \_\_\_\_\_

12  $\sqrt{8} \approx$  \_\_\_\_\_

13  $\sqrt{28} \approx$  \_\_\_\_\_

14  $\sqrt{23} \approx$  \_\_\_\_\_

15  $\sqrt{84} \approx$  \_\_\_\_\_

16  $\sqrt{45} \approx$  \_\_\_\_\_

17  $\sqrt{29} \approx$  \_\_\_\_\_

18  $\sqrt{70} \approx$  \_\_\_\_\_

Approximate to the nearest tenth.

19  $\sqrt{5} \approx$  \_\_\_\_\_

20  $\sqrt{10} \approx$  \_\_\_\_\_

21  $\sqrt{8} \approx$  \_\_\_\_\_

22  $\sqrt{28} \approx$  \_\_\_\_\_

23  $\sqrt{23} \approx$  \_\_\_\_\_

24  $\sqrt{84} \approx$  \_\_\_\_\_

Approximate to the nearest hundredth.

25  $\sqrt{5} \approx$  \_\_\_\_\_

26  $\sqrt{10} \approx$  \_\_\_\_\_

27  $\sqrt{8} \approx$  \_\_\_\_\_

# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

**Approximate irrational numbers.**

**Form B**

**Write the two consecutive whole numbers that the given number is between.**

1  $\sqrt{2}$  \_\_\_\_\_

2  $\sqrt{3}$  \_\_\_\_\_

3  $\sqrt{7}$  \_\_\_\_\_

4  $\sqrt{14}$  \_\_\_\_\_

5  $\sqrt{55}$  \_\_\_\_\_

6  $\sqrt{39}$  \_\_\_\_\_

7  $\sqrt{99}$  \_\_\_\_\_

8  $\sqrt{39}$  \_\_\_\_\_

9  $\sqrt{24}$  \_\_\_\_\_

**Approximate to the nearest whole number.**

10  $\sqrt{2} \approx$  \_\_\_\_\_

11  $\sqrt{3} \approx$  \_\_\_\_\_

12  $\sqrt{7} \approx$  \_\_\_\_\_

13  $\sqrt{14} \approx$  \_\_\_\_\_

14  $\sqrt{55} \approx$  \_\_\_\_\_

15  $\sqrt{39} \approx$  \_\_\_\_\_

16  $\sqrt{99} \approx$  \_\_\_\_\_

17  $\sqrt{39} \approx$  \_\_\_\_\_

18  $\sqrt{24} \approx$  \_\_\_\_\_

**Approximate to the nearest tenth.**

19  $\sqrt{2} \approx$  \_\_\_\_\_

20  $\sqrt{3} \approx$  \_\_\_\_\_

21  $\sqrt{7} \approx$  \_\_\_\_\_

22  $\sqrt{14} \approx$  \_\_\_\_\_

23  $\sqrt{55} \approx$  \_\_\_\_\_

24  $\sqrt{39} \approx$  \_\_\_\_\_

**Approximate to the nearest hundredth.**

25  $\sqrt{2} \approx$  \_\_\_\_\_

26  $\sqrt{3} \approx$  \_\_\_\_\_

27  $\sqrt{7} \approx$  \_\_\_\_\_



# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Approximate expressions with irrational numbers.

Form A

Give the two consecutive whole numbers that the given expression is between.

1  $2\sqrt{3}$  \_\_\_\_\_

2  $2\pi$  \_\_\_\_\_

3  $\sqrt{35} + 2$  \_\_\_\_\_

4  $\frac{4}{3}\pi$  \_\_\_\_\_

5  $4\sqrt{5}$  \_\_\_\_\_

6  $\sqrt{48} - 2$  \_\_\_\_\_

Approximate the value of the expression to the nearest whole number.

7  $\sqrt{5} + \sqrt{2} \approx$  \_\_\_\_\_

8  $\pi^2 \approx$  \_\_\_\_\_

9  $\frac{\sqrt{82}}{4} \approx$  \_\_\_\_\_

10  $3\pi \approx$  \_\_\_\_\_

11  $(\sqrt{2})^3 \approx$  \_\_\_\_\_

12  $3\sqrt{24} \approx$  \_\_\_\_\_

Approximate the value of the expression to the nearest tenth.

13  $\sqrt{3} - \sqrt{2} \approx$  \_\_\_\_\_

14  $\frac{\sqrt{2}}{2} \approx$  \_\_\_\_\_

15  $\frac{1}{\sqrt{3}} \approx$  \_\_\_\_\_

16  $\frac{\pi}{2} \approx$  \_\_\_\_\_

17  $\frac{2}{\sqrt{2}} \approx$  \_\_\_\_\_

18  $5 - \pi \approx$  \_\_\_\_\_



# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Approximate expressions with irrational numbers.

Form B

Give the two consecutive whole numbers that the given expression is between.

1  $2\sqrt{2}$  \_\_\_\_\_

2  $4\pi$  \_\_\_\_\_

3  $\sqrt{35} - 2$  \_\_\_\_\_

4  $\frac{2}{3}\pi$  \_\_\_\_\_

5  $4\sqrt{8}$  \_\_\_\_\_

6  $\sqrt{48} + 2$  \_\_\_\_\_

Approximate the value of the expression to the nearest whole number.

7  $\sqrt{3} + \sqrt{2} \approx$  \_\_\_\_\_

8  $\pi^3 \approx$  \_\_\_\_\_

9  $\frac{\sqrt{65}}{3} \approx$  \_\_\_\_\_

10  $\frac{\pi}{3} \approx$  \_\_\_\_\_

11  $(\sqrt{3})^3 \approx$  \_\_\_\_\_

12  $4\sqrt{26} \approx$  \_\_\_\_\_

Approximate the value of the expression to the nearest tenth.

13  $\sqrt{5} - \sqrt{3} \approx$  \_\_\_\_\_

14  $\frac{\sqrt{3}}{2} \approx$  \_\_\_\_\_

15  $\frac{1}{\sqrt{2}} \approx$  \_\_\_\_\_

16  $5\pi \approx$  \_\_\_\_\_

17  $\frac{2}{\sqrt{3}} \approx$  \_\_\_\_\_

18  $6 - \pi \approx$  \_\_\_\_\_



# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Rewrite a repeating decimal as a fraction.

Form A

1  $0.\overline{6} =$  \_\_\_\_\_

2  $0.\overline{63} =$  \_\_\_\_\_

3  $0.\overline{4} =$  \_\_\_\_\_

4  $0.8\overline{3} =$  \_\_\_\_\_

5  $0.1\overline{3} =$  \_\_\_\_\_

6  $0.2\overline{7} =$  \_\_\_\_\_

7  $0.6\overline{1} =$  \_\_\_\_\_

8  $0.0\overline{6} =$  \_\_\_\_\_

9  $0.9\overline{4} =$  \_\_\_\_\_

10  $0.\overline{36} =$  \_\_\_\_\_

11  $0.\overline{7} =$  \_\_\_\_\_

12  $0.\overline{54} =$  \_\_\_\_\_

13  $0.41\overline{6} =$  \_\_\_\_\_

14  $0.8\overline{6} =$  \_\_\_\_\_

15  $0.08\overline{3} =$  \_\_\_\_\_

16  $0.\overline{27} =$  \_\_\_\_\_

17  $0.\overline{1} =$  \_\_\_\_\_

18  $0.\overline{90} =$  \_\_\_\_\_

# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Rewrite a repeating decimal as a fraction.

Form B

1  $0.\overline{3} =$  \_\_\_\_\_

2  $0.\overline{81} =$  \_\_\_\_\_

3  $0.\overline{5} =$  \_\_\_\_\_

4  $0.1\overline{6} =$  \_\_\_\_\_

5  $0.7\overline{3} =$  \_\_\_\_\_

6  $0.3\overline{8} =$  \_\_\_\_\_

7  $0.7\overline{2} =$  \_\_\_\_\_

8  $0.2\overline{6} =$  \_\_\_\_\_

9  $0.5\overline{3} =$  \_\_\_\_\_

10  $0.\overline{18} =$  \_\_\_\_\_

11  $0.\overline{2} =$  \_\_\_\_\_

12  $0.\overline{45} =$  \_\_\_\_\_

13  $0.58\overline{3} =$  \_\_\_\_\_

14  $0.0\overline{5} =$  \_\_\_\_\_

15  $0.91\overline{6} =$  \_\_\_\_\_

16  $0.\overline{09} =$  \_\_\_\_\_

17  $0.\overline{8} =$  \_\_\_\_\_

18  $0.\overline{72} =$  \_\_\_\_\_



# Rational and Irrational Numbers— Repeated Reasoning

Name: \_\_\_\_\_

Find patterns in repeating decimals. Rewrite each decimal as a fraction.

## Set A

1  $0.\overline{3} =$  \_\_\_\_\_

2  $0.0\overline{3} =$  \_\_\_\_\_

3  $0.00\overline{3} =$  \_\_\_\_\_

4  $0.\overline{4} =$  \_\_\_\_\_

5  $0.0\overline{4} =$  \_\_\_\_\_

6  $0.00\overline{4} =$  \_\_\_\_\_

7  $0.\overline{5} =$  \_\_\_\_\_

8  $0.0\overline{5} =$  \_\_\_\_\_

9  $0.00\overline{5} =$  \_\_\_\_\_

## Set B

1  $0.\overline{3} =$  \_\_\_\_\_

2  $0.0\overline{3} =$  \_\_\_\_\_

3  $0.00\overline{3} =$  \_\_\_\_\_

4  $0.\overline{4} =$  \_\_\_\_\_

5  $0.0\overline{4} =$  \_\_\_\_\_

6  $0.00\overline{4} =$  \_\_\_\_\_

7  $0.\overline{5} =$  \_\_\_\_\_

8  $0.0\overline{5} =$  \_\_\_\_\_

9  $0.00\overline{5} =$  \_\_\_\_\_

Describe a pattern you see in one of the sets of problems above.

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# Integer Exponents—Skills Practice

Name: \_\_\_\_\_

Simplify expressions with exponents.

Form A

Rewrite each expression using a single nonnegative exponent.

1  $y^5 \cdot y^7 =$  \_\_\_\_\_

2  $(m^3)^4 =$  \_\_\_\_\_

3  $n^6 \cdot n^5 =$  \_\_\_\_\_

4  $\frac{m^3}{m^9} =$  \_\_\_\_\_

5  $(n^9)^3 =$  \_\_\_\_\_

6  $\frac{w^8}{w^4} =$  \_\_\_\_\_

Evaluate each expression.

7  $4^2 \cdot 4^1 =$  \_\_\_\_\_

8  $2^3 \cdot 5^3 =$  \_\_\_\_\_

9  $(2^3)^4 =$  \_\_\_\_\_

10  $(5^2)^3 =$  \_\_\_\_\_

11  $6^2 \cdot 7^2 =$  \_\_\_\_\_

12  $\frac{3^3}{3^5} =$  \_\_\_\_\_

13  $3^3 \cdot 3^2 =$  \_\_\_\_\_

14  $\frac{8^3}{2^3} =$  \_\_\_\_\_

15  $\frac{2^6}{2^3} =$  \_\_\_\_\_

16  $2^4 \cdot 3^4 =$  \_\_\_\_\_

17  $\frac{4^2}{2^2} =$  \_\_\_\_\_

18  $\frac{5^3}{5^2} =$  \_\_\_\_\_



# Integer Exponents—Skills Practice

Name: \_\_\_\_\_

Simplify expressions with exponents.

Form B

Rewrite each expression using a single nonnegative exponent.

1  $y^4 \cdot y^{11} =$  \_\_\_\_\_

2  $(m^2)^7 =$  \_\_\_\_\_

3  $n^8 \cdot n^5 =$  \_\_\_\_\_

4  $\frac{m^2}{m^6} =$  \_\_\_\_\_

5  $(n^8)^7 =$  \_\_\_\_\_

6  $\frac{w^{10}}{w^5} =$  \_\_\_\_\_

Evaluate each expression.

7  $5^2 \cdot 5^4 =$  \_\_\_\_\_

8  $2^1 \cdot 6^1 =$  \_\_\_\_\_

9  $(2^2)^5 =$  \_\_\_\_\_

10  $(3^2)^2 =$  \_\_\_\_\_

11  $4^2 \cdot 2^2 =$  \_\_\_\_\_

12  $\frac{3^6}{3^6} =$  \_\_\_\_\_

13  $2^2 \cdot 2^4 =$  \_\_\_\_\_

14  $\frac{10^3}{2^3} =$  \_\_\_\_\_

15  $\frac{2^5}{2^3} =$  \_\_\_\_\_

16  $4^3 \cdot 2^3 =$  \_\_\_\_\_

17  $\frac{4^2}{8^2} =$  \_\_\_\_\_

18  $\frac{4^3}{4^2} =$  \_\_\_\_\_

# Integer Exponents—Skills Practice

Name: \_\_\_\_\_

Simplify more expressions with exponents.

Form A

Rewrite each expression using a single exponent.

1  $y^{-3} \cdot y^{-7} =$  \_\_\_\_\_

2  $(m^{-2})^3 =$  \_\_\_\_\_

3  $n^{-2} \cdot n^8 =$  \_\_\_\_\_

4  $\frac{m^{-10}}{m^{-5}} =$  \_\_\_\_\_

5  $(n^{-4})^{-4} =$  \_\_\_\_\_

6  $\frac{w^6}{w^{-5}} =$  \_\_\_\_\_

Evaluate each expression.

7  $2^{-4} \cdot 2^{-2} =$  \_\_\_\_\_

8  $0^7 \cdot 2^7 =$  \_\_\_\_\_

9  $(2^{-3})^{-3} =$  \_\_\_\_\_

10  $(3^{-4})^0 =$  \_\_\_\_\_

11  $(-2)^{-2} \cdot (-2)^{-2} =$  \_\_\_\_\_

12  $\frac{(-6)^3}{(-6)^2} =$  \_\_\_\_\_

13  $3^0 \cdot 3^{-4} =$  \_\_\_\_\_

14  $\frac{7^{-2}}{3^{-2}} =$  \_\_\_\_\_

15  $\frac{4^{-2}}{4^{-5}} =$  \_\_\_\_\_

16  $(-5)^4 \cdot (-5)^{-3} =$  \_\_\_\_\_

17  $\frac{(-8)^0}{(-7)^0} =$  \_\_\_\_\_

18  $\frac{(-4)^3}{(-6)^3} =$  \_\_\_\_\_



# Integer Exponents—Skills Practice

Name: \_\_\_\_\_

Simplify more expressions with exponents.

Form B

Rewrite each expression using a single exponent.

1  $y^{-4} \cdot y^{-5} =$  \_\_\_\_\_

2  $(m^{-3})^5 =$  \_\_\_\_\_

3  $n^{-3} \cdot n^6 =$  \_\_\_\_\_

4  $\frac{m^{-12}}{m^{-6}} =$  \_\_\_\_\_

5  $(n^{-2})^{-2} =$  \_\_\_\_\_

6  $\frac{w^5}{w^{-7}} =$  \_\_\_\_\_

Evaluate each expression.

7  $2^{-3} \cdot 2^{-2} =$  \_\_\_\_\_

8  $(-6)^4 \cdot (-6)^{-3} =$  \_\_\_\_\_

9  $(4^{-6})^0 =$  \_\_\_\_\_

10  $(3^{-2})^{-2} =$  \_\_\_\_\_

11  $(-3)^{-2} \cdot (-4)^{-2} =$  \_\_\_\_\_

12  $\frac{(-5)^4}{(-5)^3} =$  \_\_\_\_\_

13  $4^0 \cdot 4^{-3} =$  \_\_\_\_\_

14  $\frac{8^{-2}}{3^{-2}} =$  \_\_\_\_\_

15  $\frac{3^{-2}}{3^{-5}} =$  \_\_\_\_\_

16  $0^6 \cdot 2^6 =$  \_\_\_\_\_

17  $\frac{(-6)^3}{(3)^3} =$  \_\_\_\_\_

18  $\frac{(-6)^0}{(-5)^0} =$  \_\_\_\_\_



# Integer Exponents—Repeated Reasoning

Name: \_\_\_\_\_

Find patterns in products of powers with the same base.

Expand each factor. Write the product in expanded form. Then write the product using an exponent. The first one is done for you.

1  $2^3 \times 2^2 = (2 \times 2 \times 2) \times (2 \times 2) = 2 \times 2 \times 2 \times 2 \times 2 = 2^5$

2  $3^3 \times 3^2 =$  \_\_\_\_\_

3  $4^3 \times 4^2 =$  \_\_\_\_\_

4  $5^3 \times 5^2 =$  \_\_\_\_\_

5  $6^3 \times 6^2 =$  \_\_\_\_\_

6  $7^3 \times 7^2 =$  \_\_\_\_\_

7  $8^3 \times 8^2 =$  \_\_\_\_\_

8  $9^3 \times 9^2 =$  \_\_\_\_\_

9  $n^3 \times n^2 =$  \_\_\_\_\_

10  $4.2^3 \times 4.2^2 =$  \_\_\_\_\_

Describe a pattern or relationship you see between the problems and the answers. Explain what the pattern means or why it happens.

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# Integer Exponents—Repeated Reasoning

Name: \_\_\_\_\_

Find more patterns in products of powers with the same base.  
Write each expression as a power of a single number.

## Set A

1  $3^2 \times 3^1 =$  \_\_\_\_\_

2  $3^{-2} \times 3^{-1} =$  \_\_\_\_\_

3  $3^2 \times 3^2 =$  \_\_\_\_\_

4  $3^{-2} \times 3^{-2} =$  \_\_\_\_\_

5  $3^2 \times 3^3 =$  \_\_\_\_\_

6  $3^{-2} \times 3^{-3} =$  \_\_\_\_\_

7  $3^2 \times 3^4 =$  \_\_\_\_\_

8  $3^{-2} \times 3^{-4} =$  \_\_\_\_\_

9  $3^2 \times 3^5 =$  \_\_\_\_\_

10  $3^{-2} \times 3^{-5} =$  \_\_\_\_\_

11  $3^2 \times 3^6 =$  \_\_\_\_\_

12  $3^{-2} \times 3^{-6} =$  \_\_\_\_\_

## Set B

1  $3^{-2} \times 3^1 =$  \_\_\_\_\_

2  $3^{-2} \times 3^2 =$  \_\_\_\_\_

3  $3^{-2} \times 3^3 =$  \_\_\_\_\_

4  $3^2 \times 3^{-1} =$  \_\_\_\_\_

5  $3^2 \times 3^{-2} =$  \_\_\_\_\_

6  $3^2 \times 3^{-3} =$  \_\_\_\_\_

Describe a pattern you see in one of the sets of problems above.

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Find patterns in quotients of powers with the same base.

Expand each term in the quotient of powers. Write the quotient in expanded form. Then write the quotient using an exponent. The first one has been done for you.

1  $2^5 \div 2^3 = (2 \cdot 2 \cdot 2 \cdot 2 \cdot 2) \div (2 \cdot 2 \cdot 2) = 2 \cdot 2 = 2^2$

2  $3^5 \div 3^3 =$  \_\_\_\_\_

3  $4^5 \div 4^3 =$  \_\_\_\_\_

4  $5^5 \div 5^3 =$  \_\_\_\_\_

5  $6^5 \div 6^3 =$  \_\_\_\_\_

6  $7^5 \div 7^3 =$  \_\_\_\_\_

7  $8^5 \div 8^3 =$  \_\_\_\_\_

8  $9^5 \div 9^3 =$  \_\_\_\_\_

9  $n^5 \div n^3 =$  \_\_\_\_\_

10  $6.3^5 \div 6.3^3 =$  \_\_\_\_\_

Describe a pattern or relationship you see between the problems and the answers. Explain what the pattern means or why it happens.

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Find more patterns in quotients of powers with the same base.

Expand each term in the quotient of powers. Write the quotient in expanded form. Then write the quotient using an exponent. The first one has been done for you.

1  $2^4 \div 2^1 = (2 \times 2 \times 2 \times 2) \div (2) = 2 \times 2 \times 2 = 2^3$

2  $2^4 \div 2^2 =$  \_\_\_\_\_

3  $2^4 \div 2^3 =$  \_\_\_\_\_

4  $2^4 \div 2^4 =$  \_\_\_\_\_

5  $2^4 \div 2^5 =$  \_\_\_\_\_

6  $2^4 \div 2^6 =$  \_\_\_\_\_

7  $2^4 \div 2^7 =$  \_\_\_\_\_

8  $4.3^5 \div 4.3^2 =$  \_\_\_\_\_

Describe a pattern or relationship you see between the problems and the answers. Explain what the pattern means or why it happens.

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Find patterns in products of powers with different bases.

Expand each factor. Rewrite the expanded form as a power of a product. Then simplify. The first one has been done for you.

## Set A

1  $2^2 \times 4^2 = 2 \times 2 \times 4 \times 4 = (2 \times 4)^2 = 8^2$

2  $2^3 \times 4^3 =$  \_\_\_\_\_

3  $2^4 \times 4^4 =$  \_\_\_\_\_

4  $3^2 \times 5^2 =$  \_\_\_\_\_

5  $3^3 \times 5^3 =$  \_\_\_\_\_

6  $n^5 \times m^5 =$  \_\_\_\_\_

Write the base as a product of two factors. Use the exponent to expand the product. Then write it as a product of two exponential expressions. The first one has been done for you.

## Set B

1  $10^2 = (2 \times 5)^2 = 2 \times 5 \times 2 \times 5 = 2^2 \times 5^2$

2  $10^3 =$  \_\_\_\_\_

3  $10^4 =$  \_\_\_\_\_

4  $6^2 =$  \_\_\_\_\_

5  $6^3 =$  \_\_\_\_\_

6  $(mn)^5 =$  \_\_\_\_\_

Describe a pattern you see in one of the sets of problems above.

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Write the numbers in scientific notation.

Form A

1  $4,500 =$  \_\_\_\_\_

2  $0.0578 =$  \_\_\_\_\_

3  $57 =$  \_\_\_\_\_

4  $0.006256 =$  \_\_\_\_\_

5  $730 =$  \_\_\_\_\_

6  $0.000042 =$  \_\_\_\_\_

7  $0.007 =$  \_\_\_\_\_

8  $25.63 =$  \_\_\_\_\_

9  $300.25 =$  \_\_\_\_\_

10  $0.1456 =$  \_\_\_\_\_

11  $56,325.2 =$  \_\_\_\_\_

12  $9,214.3 =$  \_\_\_\_\_

Write the numbers in standard form.

13  $7.65 \times 10^3 =$  \_\_\_\_\_

14  $5.21 \times 10^{-1} =$  \_\_\_\_\_

15  $7.528 \times 10^2 =$  \_\_\_\_\_

16  $2.169 \times 10^{-4} =$  \_\_\_\_\_

17  $2.7345 \times 10^1 =$  \_\_\_\_\_

18  $4.6 \times 10^{-5} =$  \_\_\_\_\_

19  $8.752 \times 10^5 =$  \_\_\_\_\_

20  $5.0 \times 10^{-3} =$  \_\_\_\_\_

21  $8.0 \times 10^7 =$  \_\_\_\_\_

22  $5.639 \times 10^{-2} =$  \_\_\_\_\_

23  $5.3725 \times 10^4 =$  \_\_\_\_\_

24  $1.3 \times 10^{-6} =$  \_\_\_\_\_

## Write the numbers in scientific notation.

Form B

1  $6,500 =$  \_\_\_\_\_

2  $0.0354 =$  \_\_\_\_\_

3  $69 =$  \_\_\_\_\_

4  $0.007257 =$  \_\_\_\_\_

5  $820 =$  \_\_\_\_\_

6  $0.000053 =$  \_\_\_\_\_

7  $0.002 =$  \_\_\_\_\_

8  $37.85 =$  \_\_\_\_\_

9  $400.75 =$  \_\_\_\_\_

10  $0.2531 =$  \_\_\_\_\_

11  $76,213.8 =$  \_\_\_\_\_

12  $1,876.4 =$  \_\_\_\_\_

## Write the numbers in standard form.

13  $8.72 \times 10^3 =$  \_\_\_\_\_

14  $3.79 \times 10^{-1} =$  \_\_\_\_\_

15  $3.628 \times 10^2 =$  \_\_\_\_\_

16  $9.786 \times 10^{-4} =$  \_\_\_\_\_

17  $1.4278 \times 10^1 =$  \_\_\_\_\_

18  $3.4 \times 10^{-5} =$  \_\_\_\_\_

19  $6.251 \times 10^5 =$  \_\_\_\_\_

20  $4.0 \times 10^{-3} =$  \_\_\_\_\_

21  $9.0 \times 10^7 =$  \_\_\_\_\_

22  $6.213 \times 10^{-2} =$  \_\_\_\_\_

23  $4.1723 \times 10^4 =$  \_\_\_\_\_

24  $4.6 \times 10^{-6} =$  \_\_\_\_\_



# Scientific Notation—Skills Practice

Name: \_\_\_\_\_

Perform operations with numbers written in scientific notation. Write your answers in standard form.

Form A

1  $(4.2 \times 10^4) \times (2 \times 10^3) =$  \_\_\_\_\_

2  $(2.8 \times 10^5) \div (7 \times 10^{-2}) =$  \_\_\_\_\_

3  $(3.9 \times 10^6) + (4.1 \times 10^7) =$  \_\_\_\_\_

4  $(5.05 \times 10^{-3}) \div (5.05 \times 10^{-2}) =$  \_\_\_\_\_

5  $(3.21 \times 10^{-3}) \cdot (4.6 \times 10^3) =$  \_\_\_\_\_

6  $(4.5 \times 10^4) + (1.1 \times 10^1) =$  \_\_\_\_\_

7  $(2.65 \times 10^3) - (1.21 \times 10^3) =$  \_\_\_\_\_

8  $(7.5 \times 10^{-2}) + (8.6 \times 10^2) =$  \_\_\_\_\_

9  $(6.21 \times 10^{-2}) - (4.32 \times 10^{-4}) =$  \_\_\_\_\_

10  $(8.6 \times 10^2) + (9.4 \times 10^2) =$  \_\_\_\_\_

11  $(2.6 \times 10^5) \cdot (3.8 \times 10^{-3}) =$  \_\_\_\_\_

12  $(1.7 \times 10^{-1}) + (2.59 \times 10^{-2}) =$  \_\_\_\_\_

13  $\frac{4.62 \times 10^6}{2.2 \times 10^3} =$  \_\_\_\_\_

14  $(4.25 \times 10^5) \cdot (3.5 \times 10^{-5}) =$  \_\_\_\_\_



# Scientific Notation—Skills Practice

Name: \_\_\_\_\_

Perform operations with numbers written in scientific notation. Write your answers in standard form.

Form B

1  $(3.1 \times 10^4) \times (3 \times 10^3) =$  \_\_\_\_\_

2  $(3.6 \times 10^5) \div (4 \times 10^{-2}) =$  \_\_\_\_\_

3  $(2.7 \times 10^6) + (5.1 \times 10^7) =$  \_\_\_\_\_

4  $(6.39 \times 10^{-2}) \div (3 \times 10^{-3}) =$  \_\_\_\_\_

5  $(4.78 \times 10^{-3}) \times (2.1 \times 10^3) =$  \_\_\_\_\_

6  $(5.84 \times 10^4) + (6.2 \times 10^1) =$  \_\_\_\_\_

7  $(3.85 \times 10^3) - (1.41 \times 10^3) =$  \_\_\_\_\_

8  $(3.5 \times 10^{-2}) + (7.9 \times 10^2) =$  \_\_\_\_\_

9  $(5.31 \times 10^{-2}) - (2.34 \times 10^{-4}) =$  \_\_\_\_\_

10  $(7.2 \times 10^2) + (8.7 \times 10^2) =$  \_\_\_\_\_

11  $(4.6 \times 10^5) \times (2.8 \times 10^{-3}) =$  \_\_\_\_\_

12  $(1.9 \times 10^{-1}) + (3.69 \times 10^{-2}) =$  \_\_\_\_\_

13  $\frac{1.725 \times 10^6}{7.5 \times 10^3} =$  \_\_\_\_\_

14  $(4.87 \times 10^6) \times (4.3 \times 10^{-5}) =$  \_\_\_\_\_



# Solutions to Linear Equations— Skills Practice

Name: \_\_\_\_\_

Solve and tell whether the equation has 1 solution, no solution, or infinitely many solutions.

Form A

1  $-3x + 8 - 5x = 21 - 8x$

2  $-2y - 7 + 5y = 13 - 2y$

3  $12 - 8z = -20 - 4z$

4  $7 + 2f = 9 + 4f$

5  $6 + 3m - 4 = -5 + 3m + 7$

6  $d + 6 + 2d = 4d + 9$

7  $4p - 4 = 3p - 3$

8  $4c + 12 = c - 3$

9  $7d - 8 = 3d - 8$

10  $-9n - 8 = -10n - 7$

11  $6 + 8b = -6 + 2b$

12  $7g + 5 - 2g = 5 + 5g$

# Solutions to Linear Equations— Skills Practice

Name: \_\_\_\_\_

Solve and tell whether the equation has 1 solution, no solution, or infinitely many solutions.

Form B

1  $-3x - 8 + 5x = 17 - 3x$

2  $-4a + 6 - 2a = 12 - 6a$

3  $14 - 7z = -22 - 3z$

4  $9 + 4g - 6 = -3 + 4g + 6$

5  $8 + 3d = 10 + 5d$

6  $5w - 5 = 4w - 4$

7  $c + 7 + 3c = 5c + 11$

8  $9 + 6p = -9 - 3p$

9  $5f + 14 = f - 6$

10  $9h - 7 = 4h - 7$

11  $6z + 3 - 3z = 3 + 3z$

12  $-9b - 10 = -10b - 9$



# Solutions to Linear Equations— Skills Practice

Name: \_\_\_\_\_

Use the distributive property as needed to solve and tell whether the equation has 1 solution, no solution, or infinitely many solutions.

Form A

1  $6x - 12 = 6(x - 2)$

2  $\frac{4}{5} - \frac{3}{10}m = \frac{1}{10}m - \frac{4}{5}$

3  $-15x - 4 + 6x = -4 - 9x$

4  $7(y - 6) = 7y + 42$

5  $4(p + 5) = 6p + 20$

6  $3m + 11 = \frac{1}{3}(9m + 33)$

7  $15y - 4 = 12y - 28$

8  $-8 + 2n + 14 = 4n - 16$

9  $-\frac{1}{2}(4a + 8) = -2a + 4$

10  $3(m - 4) = 6m - 15$

11  $8(2y + 5) = 9y + 12$

12  $2n + 14 = 3n + 5$

# Solutions to Linear Equations— Skills Practice

Name: \_\_\_\_\_

Use the distributive property as needed to solve and tell whether the equation has 1 solution, no solution, or infinitely many solutions.

Form B

1  $\frac{2}{3} - \frac{1}{6}m = \frac{1}{6}m - \frac{2}{3}$

2  $7x - 14 = 7(x - 2)$

3  $7(p + 4) = 9p + 28$

4  $-16x - 8 + 9x = -8 - 7x$

5  $4m + 11 = \frac{1}{8}(32m + 88)$

6  $8(y - 7) = 8y + 56$

7  $-9 + 4n + 18 = 7n - 24$

8  $14y - 6 = 11y - 27$

9  $5(m - 3) = 7m - 17$

10  $-\frac{1}{4}(8a + 20) = -2a + 5$

11  $7(4y + 5) = 19y + 8$

12  $-9n - 8 - 3n = 6n - 8$



Solve systems of equations using substitution.

Form A

1  $y = 4x$   
 $2y + 2.5x = 105$

2  $x + 10 = -8y$   
 $-8y + x = 6$

3  $x = -6y$   
 $3x + 6y = -24$

4  $x - 9 = 7y$   
 $7y + x = -19$

5  $y = 7x$   
 $-2x + y = 15$

6  $x + 5 = -4y$   
 $-4y + x = 43$

7  $x - 1 = \frac{1}{2}y$   
 $\frac{1}{2}y + x = 11$

8  $y = \frac{1}{3}x$   
 $-6x + 3y = 30$

9  $x = 1.5y$   
 $-8x - 2y = -84$

10  $y = 0.5x$   
 $8y - 6x = -20$

Solve systems of equations using substitution.

Form B

1  $x = 7y$   
 $3x + 2y = 23$

2  $x = 4y$   
 $0.5y + 2x = 85$

3  $x - 6 = 5y$   
 $5y + x = -24$

4  $x = 9y$   
 $5x + 3y = -48$

5  $y = \frac{1}{5}x$   
 $-7x + 5y = 60$

6  $x - 8 = \frac{1}{6}y$   
 $\frac{1}{6}y + x = 10$

7  $y = 3x$   
 $-2x + y = 5$

8  $x + 7 = -3y$   
 $-3y + x = 41$

9  $y = 1.5x$   
 $10y - 3x = 96$

10  $x + 7 = 8y$   
 $8y + x = 9$



Solve systems of equations using any method.

Form A

1  $3x - 4y = 7$   
 $3x - 4y = 9$

2  $10x - 15y = 30$   
 $2x - 4y = 4$

3  $y = 2x$   
 $4y + 3x = 55$

4  $6x + 2y = 20$   
 $3x + 2y = 8$

5  $14y - 7x = 21$   
 $x - 2y = -3$

6  $9x - 6y = 3$   
 $-9x + 4y = 7$

7  $7y + 8x = 15$   
 $3y + 8x = 11$

8  $7x - 6y = 4$   
 $-6y + 7x = 5$

9  $5x - 4y = 9$   
 $3x + 8y = -5$

10  $x + 4 = 6y$   
 $6y + x = 8$



Solve systems of equations using any method.

Form B

1  $20x - 10y = 50$   
 $10x - 15y = -5$

2  $2x - 6y = 8$   
 $2x - 6y = 3$

3  $y = 3x$   
 $5y + 5x = 40$

4  $7x + 4y = 30$   
 $3x + 4y = 6$

5  $8x - 4y = 4$   
 $-8x + 2y = 6$

6  $15y - 5x = 20$   
 $x - 3y = -4$

7  $8x - 4y = 3$   
 $-4y + 8x = 9$

8  $9y + 6x = 15$   
 $2y + 6x = 8$

9  $10x + 4y = 8$   
 $5x + 8y = 16$

10  $x = -2y$   
 $3y + 5x = -21$



## Solve systems of equations involving fractions and decimals.

**Form A**

**1**  $x = 0.5y$   
 $6x + 2y = 20$

**2**  $2x + 3y = 5$   
 $0.25x + 0.25y = 0.5$

**3**  $\frac{3}{5}x + \frac{7}{10}y = 20$   
 $2x - 7y = -120$

**4**  $x = \frac{1}{4}y$   
 $12x - 4y = 8$

**5**  $4x + 5y = 42$   
 $\frac{2}{3}x - \frac{1}{6}y = 1$

**6**  $-8x - 7y = 3$   
 $\frac{4}{5}x + \frac{7}{10}y = \frac{3}{10}$

**7**  $\frac{1}{8}x + \frac{1}{4}y = 2$   
 $x + 2y = 16$

**8**  $x = \frac{1}{6}y$   
 $36x - 2y = 24$

**9**  $6x - 5y = 36$   
 $0.5x + 2.5y = 3$

**10**  $2.5x + 5y = 50$   
 $1.25x + 1.5y = 21$

Solve systems of equations involving fractions and decimals.

Form B

**1**  $x = -0.5y$   
 $8x + 6y = 12$

**2**  $-6x + 12y = 14$   
 $1.5x - 3y = -3.5$

**3**  $4x - 7y = 32$   
 $0.5x + 3.5y = 4$

**4**  $2x + 6y = 8$   
 $0.25x + 0.25y = 0.5$

**5**  $\frac{4}{5}x + \frac{3}{10}y = 13$   
 $2x - 3y = -80$

**6**  $y = \frac{1}{5}x$   
 $3x - 25y = 20$

**7**  $\frac{1}{5}x + \frac{1}{10}y = 3$   
 $2x + y = 30$

**8**  $4x + y = 12$   
 $\frac{1}{3}x - \frac{1}{6}y = -2$

**9**  $-6x - 3y = 5$   
 $\frac{3}{4}x + \frac{3}{8}y = \frac{5}{8}$

**10**  $2x + 5y = 24$   
 $\frac{1}{2}x - \frac{3}{4}y = -2$



# Linear Functions—Skills Practice

Name: \_\_\_\_\_

Find the slope of the line through two given points.

Form A

1 (7, 7) and (9, 9)

slope = \_\_\_\_\_

2 (8, 11) and (5, 5)

slope = \_\_\_\_\_

3 (2, 5) and (5, 8)

slope = \_\_\_\_\_

4 (-2, -3) and (-1, -6)

slope = \_\_\_\_\_

5 (-1, -4) and (3, 12)

slope = \_\_\_\_\_

6 (0, 0) and (6, 5)

slope = \_\_\_\_\_

7 (5, 6) and (9, 8)

slope = \_\_\_\_\_

8 (-2, -13) and (-4, -3)

slope = \_\_\_\_\_

9 (5, 9) and (3, 11)

slope = \_\_\_\_\_

10 (-8, 17) and (-5, 19)

slope = \_\_\_\_\_

11  $\left(\frac{1}{4}, 4\right)$  and  $\left(\frac{3}{4}, 5\right)$

slope = \_\_\_\_\_

12 (6, 3) and (-6, 6)

slope = \_\_\_\_\_

13 (8, 5) and (4, -7)

slope = \_\_\_\_\_

14  $\left(\frac{1}{8}, -2\right)$  and  $\left(\frac{5}{8}, -4\right)$

slope = \_\_\_\_\_

15 (0, 4) and (-10, 0)

slope = \_\_\_\_\_

16 (3, 8) and (4, 6)

slope = \_\_\_\_\_

17 (4, 9) and (7, 9)

slope = \_\_\_\_\_

18 (-3, 0) and (0, 9)

slope = \_\_\_\_\_

19 (-2, 3) and (4, -2)

slope = \_\_\_\_\_

20 (1, 1) and (-3, 9)

slope = \_\_\_\_\_

21  $\left(-\frac{1}{4}, \frac{1}{4}\right)$  and (-2, 2)

slope = \_\_\_\_\_

# Linear Functions—Skills Practice

Name: \_\_\_\_\_

Find the slope of the line through two given points.

Form B

1 (7, 10) and (4, 4)

slope = \_\_\_\_\_

2 (6, 6) and (14, 14)

slope = \_\_\_\_\_

3 (-3, -4) and (-2, -7)

slope = \_\_\_\_\_

4 (0, 0) and (9, 4)

slope = \_\_\_\_\_

5 (-1, -10) and (4, 15)

slope = \_\_\_\_\_

6 (2, 4) and (4, 6)

slope = \_\_\_\_\_

7  $(\frac{1}{4}, -3)$  and  $(\frac{3}{4}, -5)$

slope = \_\_\_\_\_

8  $(-\frac{1}{5}, \frac{1}{5})$  and (-2, 2)

slope = \_\_\_\_\_

9 (2, 7) and (6, 9)

slope = \_\_\_\_\_

10 (-2, -5) and (-4, -11)

slope = \_\_\_\_\_

11 (-7, 16) and (-4, 18)

slope = \_\_\_\_\_

12 (9, 6) and (-9, 9)

slope = \_\_\_\_\_

13  $(\frac{1}{8}, 6)$  and  $(\frac{5}{8}, 7)$

slope = \_\_\_\_\_

14 (1, 1) and (-2, 7)

slope = \_\_\_\_\_

15 (-2, 0) and (0, -10)

slope = \_\_\_\_\_

16 (0, -6) and (-8, 0)

slope = \_\_\_\_\_

17 (4, 12) and (5, 10)

slope = \_\_\_\_\_

18 (6, 7) and (1, 12)

slope = \_\_\_\_\_

19 (9, 6) and (4, -9)

slope = \_\_\_\_\_

20 (2, -1) and (7, 2)

slope = \_\_\_\_\_

21 (6, 8) and (9, 8)

slope = \_\_\_\_\_



**Determine the rate of change and the initial value of the line through two given points.**

**Form A**

**1** (5, 14) and (3, 10)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**2** (9, 32) and (4, 17)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**3** (8, 5) and (4, 7)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**4** (4, 8) and (12, 10)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**5** (3, 13) and (6, 14)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**6** (0, 4) and (7, 4)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**7** (1, 6) and (6, 1)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**8** (3, 8) and (12, 2)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**9** (4, 1) and (8, 2)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**10** (1, 3) and (3, 9)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**11** (2, 8) and (4, 8)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**12** (5, 12) and (2, 6)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**Give the rate of change and the initial value from each description.**

**13** Yamini starts a savings account with \$12. She will put in an equal amount each week. After 6 weeks, she will have \$54.

Rate of change per week = \_\_\_\_\_

Initial value = \_\_\_\_\_

**14** Jordan has some music books. He will buy 9 new music books each year. He will have 52 music books in 5 years.

Rate of change per year = \_\_\_\_\_

Initial value = \_\_\_\_\_

**Determine the rate of change and the initial value of the line through two given points.**

**Form B**

**1** (1, 4) and (3, 12)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**2** (5, 18) and (2, 9)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**3** (5, 1) and (10, 2)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**4** (0, 5) and (8, 5)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**5** (1, 6) and (6, 16)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**6** (8, 30) and (5, 21)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**7** (1, 3) and (3, 1)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**8** (4, 7) and (12, 9)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**9** (3, 11) and (5, 11)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**10** (8, 4) and (4, 6)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**11** (6, 16) and (9, 17)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**12** (6, 8) and (15, 2)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**Give the rate of change and the initial value from each description.**

**13** Kahn starts a savings account with \$14. He will put in an equal amount each week. After 7 weeks, he will have \$56.

Rate of change per week = \_\_\_\_\_

Initial value = \_\_\_\_\_

**14** Addison has some puzzle books. She will buy 7 new puzzle of books each year. She will have 43 puzzle books in 5 years.

Rate of change per year = \_\_\_\_\_

Initial value = \_\_\_\_\_



# Linear Functions—Skills Practice

Name: \_\_\_\_\_

Identify another point on the line given one point and the slope.

Form A

1  $(-4, 0)$  and slope =  $-2$

2  $(-5, 2)$  and slope =  $-1$

3  $(4, 5)$  and slope =  $0$

4  $(-3, -2)$  and slope =  $5$

5  $(5, 6)$  and slope =  $1$

6  $(0, 0)$  and slope =  $3$

7  $(-1, -1)$  and slope =  $-\frac{1}{2}$

8  $(1, 1)$  and slope =  $-4$

9  $(-2, -2)$  and slope =  $\frac{1}{4}$

10  $(0, -2)$  and slope =  $-5$

11  $(1, 2)$  and slope =  $-\frac{1}{3}$

12  $(3, -6)$  and slope =  $4$

13  $(2, -3)$  and slope =  $0$

14  $(4, 4)$  and slope =  $-3$

15  $(3, 5)$  and slope =  $-\frac{3}{5}$

16  $(2, 7)$  and slope =  $1$

17  $(3, -3)$  and slope =  $-6$

18  $(2, 2)$  and slope =  $2$

19  $(-2, 1)$  and slope =  $\frac{1}{6}$

20  $(4, 2)$  and slope =  $-2$

21  $(0, 0)$  and slope =  $\frac{2}{3}$

22  $(2, 4)$  and slope =  $-1$

23  $(1, -1)$  and slope =  $3$

24  $(-1, 1)$  and slope =  $8$



# Linear Functions—Skills Practice

Name: \_\_\_\_\_

Identify another point on the line given one point and the slope.

Form B

1 (6, 7) and slope = 0

2 (-4, -5) and slope = 5

3 (-4, 3) and slope = -1

4 (-6, 0) and slope = -2

5 (3, 11) and slope = 1

6 (0, 0) and slope =  $\frac{1}{4}$

7 (-1, -1) and slope =  $-\frac{3}{5}$

8 (1, 2) and slope =  $-\frac{1}{2}$

9 (0, -3) and slope = -5

10 (4, -8) and slope = 3

11 (4, -9) and slope = 0

12 (-3, 3) and slope =  $-\frac{1}{3}$

13 (5, 5) and slope = -2

14 (5, -5) and slope = -6

15 (8, 9) and slope = 1

16 (-2, 3) and slope =  $\frac{2}{3}$

17 (3, 4) and slope = -4

18 (-3, 1) and slope =  $\frac{1}{6}$

19 (1, 1) and slope = -3

20 (0, 0) and slope = 4

21 (-1, 1) and slope = 2

22 (8, 8) and slope = 8

23 (1, -1) and slope = -1

24 (6, 2) and slope = 3



