math Antics
Exercises

Name:

Date:

What Is Algebra?

1 Fill in the blank.

An _____ is a mathematical statement that two things are equal.

2 Fill in the blank.

In Algebra, when a number isn't known, we use a _____ in its place.

3 Fill in the blank.

Figuring out the value of an unknown in an equation is called _____ the equation.

4 Fill in the blank.

In Algebra, the letters used to represent unknown values are called _____ because their values can change or vary.

5 Fill in the blank.

_____ is the default operation in Algebra.

6 Circle to indicate if this statement is true or false.

A symbol CAN'T be used to represent two different values in the same equation at the same time.

TRUE or FALSE

7 Since multiplication is implied in Algebra, we often don't need to actually write the times symbol '×'. Re-write this algebraic equation without the times symbol.

$$a \times b = 4 \times c$$

8 To show that you can identify implied multiplication, re-write this algebraic equation using the times symbol wherever multiplication is implied.

$$3(bc) = 2d$$

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Implied Multiplication

AB-WIA 1

Instructions: Since multiplication is implied in Algebra, we often don't need to actually write the times symbol '×'. **Re-write** these algebraic equation without the times symbol.

1. $2 \times b = 4 - x \times y$

   2b = 4 - xy

2. $\frac{a \times b}{5} = 2 \times x$

3. $x \times y = \frac{a \times b}{d \times c}$

4. $7 + h = 5 \times g + b$

5. $(x + 2) \times (m \times k) = p$

6. $\frac{a \times b \times c}{x + y} = 10$

7. $y = m \times x + b$

8. $2 \times (x + 1) = 6 \times x$

9. $3 \times z = \frac{x \times y}{x + y}$

10. $\frac{7 \times a \times b}{3 \times c} = \frac{2 \times a}{5 \times b}$

math Antics Exercises

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Solving Basic Equations - Part 1

1 Solve for x

$$x + 6 = 18$$

2 Solve for x

$$5 + x = 19$$

3 Solve for x

$$30 = x + 22$$

4 Solve for x

$$24 = 13 + x$$

5 Solve for x

$$x - 7 = 3$$

6 Solve for x

$$40 = x - 15$$

7 Solve for x

$$x - 14 = 5$$

8 Solve for x

$$14 - x = 5$$

9 Solve for x

$$64 - x = 17$$

10 Solve for x

$$10 - x = 12$$

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Name:

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Solving Basic Equations with Addition or Subtraction - Set 1

AB-SE1 1

Instructions: Use addition or subtraction to solve each equation.

1 $x + 5 = 16$

$-5 \quad -5$

$x = 11$

2 $x - 8 = 12$

$+8 \quad +8$

$x = 20$

3 $x - 10 = 4$

4 $3 + x = 18$

5 $29 = x - 11$

6 $13 = x + 13$

7 $12 - x = 5$

8 $12 + x = 15$

9 $x - 9 = 23$

10 $25 - x = 11$

11 $x + 18 = 31$

12 $x - 6 = 17$

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Name: _____

Date: _____

Solving Basic Equations with Addition or Subtraction - Set 2

AB-SE1 2

Instructions: Use addition or subtraction to solve each equation.

1 $7 + x = 19$

$-7 \quad -7$

$x = 12$

2 $14 - x = 5$

$+x \quad +x$

$14 = 5 + x$

$-5 \quad -5$

$9 = x$ or $x = 9$

3 $3 = x - 41$

4 $14 + x = 26$

5 $45 - x = 32$

6 $25 = x + 24$

7 $39 - x = 12$

8 $80 - x = 54$

9 $x - 15 = 6$

10 $x - 3 = 75$

11 $11 + x = 30$

12 $x + 33 = 98$

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Solving Basic Equations (with decimals)

AB-SE1 3

Instructions: Use addition or subtraction to solve each equation. You can use a calculator to do the decimal arithmetic if you'd like to.

1. $x + 2.5 = 4.0$
2. $x - 0.6 = 1.1$
3. $3.1 = x - 1.5$
4. $6.4 = x + 2.6$
5. $1.7 - x = 1.2$
6. $0.9 + x = 1.0$
7. $x - 3.6 = 1.4$
8. $1.05 + x = 2.2$
9. $x - 0.1 = 0.9$
10. $3.14 - x = 0.55$

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Solving Basic Equations (with negative numbers)

AB-SE1 4

Instructions: Use addition or subtraction to solve each equation.

1. $x + 2 = -4$

2. $x - 8 = -3$

3. $-7 = x - 7$

4. $-15 = x + 13$

5. $x - 10 = -1$

6. $-1 - x = -8$

7. $-25 + x = -8$

8. $-14 + x = 10$

9. $-30 - x = -25$

10. $x - 20 = -6$

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Solving Basic Equations - Part 2

1 Solve for x

$$3x = 6$$

2 Solve for x

$$6x = 24$$

3 Solve for x

$$60 = 12x$$

4 Solve for x

$$0.5x = 1$$

5 Solve for x

$$\frac{x}{4} = 3$$

6 Solve for x

$$\frac{x}{8} = 12$$

7 Solve for x

$$15 = \frac{x}{7}$$

8 Solve for x

$$\frac{x}{0.2} = 10$$

9 Solve for x

$$\frac{15}{x} = 3$$

10 Solve for x

$$\frac{10}{x} = 4$$

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Solving Basic Equations with Multiplication or Division - Set 1

AB-SE2 1

Instructions: Use multiplication or division to solve each equation.

1 $\frac{4x}{4} = \frac{12}{4}$

$x = 3$

2 $(5)\frac{x}{5} = 7(5)$

$x = 35$

3 $\frac{x}{3} = 9$

4 $72 = 9x$

5 $12x = 144$

6 $10 = \frac{x}{4}$

7 $\frac{24}{x} = 6$

8 $5x = 105$

9 $\frac{x}{12} = 9$

10 $15 = \frac{75}{x}$

11 $\frac{x}{7} = 22$

12 $2x = 142$

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Solving Basic Equations with Multiplication or Division - Set 2

AB-SE2 2

Instructions: Use multiplication or division to solve each equation.

1 $\frac{40}{8} = \frac{8x}{8}$

$5 = x$

or $x = 5$

2 $(x)12 = \frac{48}{x}(x)$

$\frac{12x}{12} = \frac{48}{12}$

$x = 4$

3 $\frac{x}{8} = 8$

4 $11x = 66$

5 $\frac{32}{x} = 4$

6 $\frac{x}{3} = 24$

7 $6x = 78$

8 $\frac{x}{4} = 14$

9 $7 = \frac{84}{x}$

10 $65 = 5x$

11 $3x = 135$

12 $3 = \frac{x}{20}$

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Solving Basic Equations (with decimals)

AB-SE2 3

Instructions: Use multiplication or division to solve each equation. You can use a calculator to do the decimal arithmetic if you'd like to.

1. $5.0 = 2.5x$

2. $\frac{x}{2} = 1.6$

3. $1.5 = \frac{0.5}{x}$

4. $0.1x = 2.4$

5. $\frac{x}{2.1} = 1.6$

6. $\frac{3.5}{x} = 2.5$

7. $\frac{x}{3} = 6.4$

8. $0.2x = 0.7$

9. $8 = \frac{8.4}{x}$

10. $2.25 = 0.75x$

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Solving Basic Equations (with negative numbers)

AB-SE2 4

Instructions: Use multiplication or division to solve each equation.

1. $\frac{x}{5} = -6$

2. $-3x = -21$

3. $3 = \frac{-12}{x}$

4. $\frac{-28}{x} = -4$

5. $\frac{x}{-7} = 9$

6. $15x = -45$

7. $\frac{x}{-8} = -1$

8. $55 = -5x$

9. $-72 = -8x$

10. $9 = \frac{-45}{x}$

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Exercises

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Solving 2-Step Equations

1 Solve for x

$$2x + 5 = 17$$

2 Solve for x

$$\frac{x}{3} - 6 = 4$$

3 Solve for x

$$20 = 8 + 4x$$

4 Solve for x

$$2(x + 9) = 24$$

5 Solve for x

$$15 = 3(x - 6)$$

6 Solve for x

$$\frac{x + 3}{5} = 4$$

7 Solve for x

$$5 = 9 - 2x$$

8 Solve for x

$$\frac{28}{x - 2} = 4$$

math Antics Worksheets

Name: _____

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Solving 2-Step Equations - Set 1

AB-TSE 1

Instructions: Solve each equation.

1 $4x + 7 = 15$

$-7 \quad -7$

$\frac{4x}{4} = \frac{8}{4}$

$x = 2$

2 $2x - 4 = 10$

3 $6 + 3x = 15$

4 $25 = 4 + 7x$

5 $41 = 8x - 23$

6 $5x - 12 = 18$

7 $9x + 7 = 88$

8 $25 = 3x - 8$

9 $1 + 10x = 91$

10 $16 = 12 + 4x$

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Name: _____

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Solving 2-Step Equations - Set 2

AB-TSE 2

Instructions: Solve each equation.

1. $\frac{x}{4} + 5 = 12$

   $-5 \quad -5$

   $(4)\frac{x}{4} = 7(4)$

   $x = 28$

2. $\frac{x}{2} - 3 = 9$

3. $\frac{x}{6} + 15 = 20$

4. $35 = 11 + 6x$

5. $5x + 20 = 75$

6. $8 + \frac{x}{9} = 14$

7. $11 = \frac{x}{2} - 7$

8. $4x - 11 = 5$

9. $21 = 21 + 7x$

10. $\frac{x}{12} - 9 = 1$

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Solving 2-Step Equations (with Groups)

AB-TSE 3

Instructions: Solve each equation.

1 $\frac{3(x-5)}{3} = \frac{18}{3}$

$x - 5 = 6$

$+5 \quad +5$

$x = 11$

2 $5(x+6) = 40$

3 $\frac{x+9}{2} = 5$

4 $\frac{x-15}{4} = 3$

5 $32 = 8(x+1)$

6 $\frac{3+x}{7} = 4$

7 $\frac{x-10}{9} = 7$

8 $6(x-11) = 42$

9 $10(x+2) = 70$

10 $\frac{x+5}{4} = 14$

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Solving "Tricky" 2-Step Equations

AB-TSE 4

Instructions: Some 2-Step Equations are tricky because of the location of the unknown in operations that don't commute (subtraction and division). One way to solve these equations is to do an extra initial step to re-arrange the equation so that it looks like one you already know how to solve.

1 $\cancel{(x+5)}\dfrac{12}{\cancel{x+5}} = 2(x+5)$

$\dfrac{12}{2} = \dfrac{\cancel{2}(x+5)}{\cancel{2}}$

$6 = x + 5$

$-5 \quad -5$

$1 = x$ or $x = 1$

2 $\dfrac{21}{x-4} = 7$

3 $11 = 23 - 4x$

4 $27 - 3x = 15$

5 $8 = \dfrac{24}{x-3}$

6 $7 = \dfrac{77}{x+6}$

7 $41 - 2x = 9$

8 $25 = 80 - 11x$

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Solving 2-Step Equations (with decimals)

AB-TSE 5

Instructions: Solve each equation. You can use a calculator to do the decimal arithmetic if you'd like to.

1. $1.5 + 2x = 12.5$

2. $3.5(x + 0.2) = 7$

3. $\frac{x + 6.1}{2} = 3.4$

4. $\frac{x - 3}{2.8} = 1.2$

5. $4(x - 1.9) = 5.2$

6. $\frac{x}{1.1} + 3.6 = 4.3$

7. $\frac{x - 2.5}{9} = 4.5$

8. $3x + 1.8 = 7.2$

9. $\frac{x}{0.4} - 2.3 = 7.2$

10. $\frac{x + 1.7}{3.1} = 6$

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Solving 2-Step Equations (with negative numbers)

AB-TSE 6

Instructions: Solve each equation.

1. $-5 + 2x = -17$

2. $-9(x - 9) = 27$

3. $\frac{x + (-3)}{-5} = -6$

4. $\frac{x + 15}{-3} = -2$

5. $3(x - 8) = -60$

6. $\frac{x}{-2} + 10 = -3$

7. $\frac{x + 8}{-6} = 2$

8. $-3x - 3 = -15$

9. $\frac{x}{-9} - 1 = 9$

10. $\frac{x - 12}{-7} = 4$

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Exponents In Algebra

1 Solve.

$8^0 = \_\_\_$

$b^0 = \_\_\_$

2 Solve.

$8^1 = \_\_\_$

$b^1 = \_\_\_$

3 Solve.

$\left(\sqrt{10}\right)^2 = \_\_\_\_$

$\left(\sqrt[3]{15}\right)^3 = \_\_\_\_$

4 Solve. (assume $x \geq 0$)

$\sqrt[2]{x^2} = \_\_\_$

$\sqrt[3]{x^3} = \_\_\_$

5 Solve for x.

$\sqrt{x} = 5$

6 Solve for x.

$x^2 = 49$

7 Solve for x.

$\sqrt{x} = 10$

8 Solve for x.

$x^2 = 81$

9 Solve for x.

$\sqrt[3]{x} = 4$

10 Solve for x.

$x^4 = 16$

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Exponent Rules Practice

A-EIA 1

Instructions: Find the value of these exponents using the rules that you learned in the video. You will also need to know the perfect squares from the multiplication table.

1. $2^0 = 1$
2. $10^1 = 10$
3. $5^2 =$ _____
4. $5^0 =$ _____
5. $x^1 =$ _____
6. $2^2 =$ _____
7. $7^2 =$ _____
8. $7^1 =$ _____
9. $7^0 =$ _____
10. $x^0 =$ _____
11. $a^1 =$ _____
12. $a^0 =$ _____
13. $6^2 =$ _____
14. $3^2 =$ _____
15. $3^1 =$ _____
16. $12^2 =$ _____
17. $8^2 =$ _____
18. $m^0 =$ _____
19. $29^1 =$ _____
20. $32^0 =$ _____

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Exponent - Root Relationship

A-EIA 2

Instructions: Use what you've learned about the relationship between exponents and roots to evaluate these expressions.

1. $(\sqrt{7})(\sqrt{7}) =$ 7

2. $\sqrt{(x)(x)} =$ x
   where $x \geq 0$

3. $(\sqrt{15})(\sqrt{15}) =$ ____

4. $(\sqrt[3]{x})(\sqrt[3]{x})(\sqrt[3]{x}) =$ ____

5. $(\sqrt{b})^2 =$ ____
   where $b \geq 0$

6. $\pm\sqrt{(a \times a)} =$ ____

7. $\sqrt{(9 \times 9)} =$ ____

8. $(\sqrt{99})^2 =$ ____

9. $\sqrt[2]{c^2} =$ ____
   where $c \geq 0$

10. $(\sqrt{10})(\sqrt{10}) =$ ____

11. $(\sqrt[3]{2x})^3 =$ ____

12. $\sqrt{(5 \times 5)} =$ ____

13. $\pm\sqrt{(n)(n)} =$ ____

14. $\sqrt[3]{b^3} =$ ____

15. $\sqrt{(x+1)^2} =$ ____
    where $x \geq 0$

16. $\sqrt[3]{(4)(4)(4)} =$ ____

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1-Step Equations with Exponents & Roots - Set 1

A-ESR 3

Instructions: Solve for x. (Remember to do the same thing to both sides of the equation.)

1. $\sqrt{x} = 4$

   $\sqrt{x}^2 = 4^2$

   $x = 16$

2. $x^2 = 49$

   $\sqrt{x^2} = \pm\sqrt{49}$

   $x = \pm 7$

3. $x^2 = 100$

4. $\sqrt{x} = 2$

5. $\sqrt{x} = 8$

6. $x^2 = 81$

7. $11 = \sqrt{x}$

8. $x^3 = 8$

9. $x^2 = 36$

10. $\sqrt[3]{x} = 5$

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1-Step Equations with Exponents & Roots - Set 2

A-ESR 4

Instructions: Solve for x. (Remember to do the same thing to both sides of the equation.)

1. $x^2 = 64$

2. $\sqrt{x} = 6$

3. $x^2 = 400$

4. $\sqrt{x} = 12$

5. $\sqrt[3]{x} = 6$

6. $x^4 = 81$

7. $\sqrt[3]{x} = 2$

8. $x^3 = 125$

9. $x^2 = 144$

10. $x^3 = 27$

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What Are Polynomials?

1 Fill in the blank.

The number part of a term is called the _____ .

2 Fill in the blank.

If a term in a polynomial only has a number part, it's called a _____ term.

3 How many terms does this polynomial have?

$5x^3 - x^2 + 5x - 8$

_____

4 Write the degree of each of these terms in the blank next to it.

$3x^2$ ___

$10x$ ___

$6x^3$ ___

x^2y^2 ___

5 What is the coefficient of the 3rd degree term in this polynomial?

$3x^2 + x - 2x^3 - 10$

_____

6 What is the coefficient of the 2nd degree term in this polynomial?

$x^2 + 2x - 5$

_____

7 What is the degree of this polynomial?

$4x^5 - 3x^2 + x$

_____

8 What is the degree of this polynomial?

$4xy - 3y + 8$

_____

9 Re-arrange this polynomial so its terms are in order from highest to lowest.

$5x + 2x^3 - 15 - 7x^2$

10 Re-arrange this polynomial so its terms are in order from highest to lowest.

$7 + 2xy - 4x^3y + 5x$

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Polynomials and Terms

AB-WAP 1

Instructions: How many terms does each polynomial have? Write your answer in the blank provided.

1. 3 — $4x^3 + 4x^2 + x$
2. _____ — $a^3 - 5a^2 + a + 7$
3. _____ — $7x^6 - 10x^3 + 9x^2 + 5x - 8$
4. _____ — $x^8 + x^7 + x^6 + x^5 + x^4 + x^3 + x^2 + x$
5. _____ — $x^8 + x^7 + x^6 + x^5 + x^4 + x^3 + x^2 + x + 1$
6. _____ — $12b^2$
7. _____ — $xy - 5 + 9x^5 + 3x - 6x^2y - 25x^4$
8. _____ — $7x^2 - 10 + 5x - 8x^3 - x^4$
9. _____ — $5a^3 - b^2 + 5c - 8a + 12 + b + c$
10. _____ — $x - 1$

Instructions: Based on the number of terms, classify each of the following as a monomial, binomial, trinomial or polynomial.

1. binomial — $2x - 5y$
2. _____ — $6x^2 - x + 4$
3. _____ — $7x^6$
4. _____ — $4x^4 + 3x^3 + 2x^2 + x$
5. _____ — $a^2 + b^2$

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Terms: Degree and Coefficient

AB-WAP 2

Instructions: For each polynomial below, circle the term of the specified degree and then write the coefficient of that term in the space provided.

1. 3rd degree $5x^4 - 8x^3 + x^2 + 10x - 15$ Coefficient -8
2. 2nd degree $a^3 + a^2 + 3$ Coefficient _____
3. 4th degree $21x^8 + 16x^6 + 11x^4 + 6x^2 + 1$ Coefficient _____
4. 1st degree $-6x^4 + 4x^3 + 2x^2 - x + 1$ Coefficient _____
5. 6th degree $-x^4 + 7x^6 + 14x^3 - 9x + 10$ Coefficient _____
6. 5th degree $-a + 7a^2 + 14 - 5a^5 + 10a^2$ Coefficient _____
7. 2nd degree $b^4 + 2b^3 + 3b^2 + 4b + 5$ Coefficient _____
8. 1st degree $-3x^7 + 9x^5 - 4x^3 - 6x + 1$ Coefficient _____
9. 4th degree $-x^2y^2 + xy^2 + yx - x + y - 2$ Coefficient _____
10. 3rd degree $5xy^4 - 5xy^3 + 5xy^2 - 5xy$ Coefficient _____
11. 3rd degree $a^3b^3c^3 + a^2b^2c^2 + abc$ Coefficient _____
12. 2nd degree $10xy + 4x^2y + 6xy^2 + 3x^2y^2$ Coefficient _____

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Re-arranging Polynomials

AB-WAP 3

Instructions: Re-arrange each polynomial so that its terms are in order from highest degree to lowest degree. (Be sure to move the negative sign along with any negative terms that you move.)

1. $5x - 9 - x^3 + 10x^2$ — $-x^3 + 10x^2 + 5x - 9$
2. $- x + 20 + 3x^2$ — _____
3. $12a^2 - 8a^4 - 4a^6$ — _____
4. $-7 + 4x + 2x^5 + x^3$ — _____
5. $4x - 8x^2 + 16$ — _____
6. $-a + a^2 - a^3 - a^5 + a^4$ — _____
7. $10 + 2b^3 + 3b$ — _____
8. $-3x^5 + 15 - 9x^3 - 4x$ — _____
9. $-5xy + xy^2 + x^2y^2 + 2y$ — _____
10. $ab - abc + a^2bc - a$ — _____

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Simplifying Polynomials

1 Are these "like" terms?

x^2 and x

☐ Yes
☐ No

$5x$ and $-3x$

☐ Yes
☐ No

2 Are these "like" terms?

$2y$ and $2x$

☐ Yes
☐ No

$3xy$ and $4yx$

☐ Yes
☐ No

3 Simplify.

$$4x^2 + 7 + 2x^2 + 3$$

4 Simplify.

$$12x^2 - 7 - 10x^2 + 4$$

5 Simplify.

$$-3x^2 + 4x^2 - 3x + 4x$$

6 Simplify.

$$-x^4 - x^4 + 7x + 5x - x + 3$$

7 Simplify.

$$2x^3 + 5x^2 + 10x^2 + 20 + x^3$$

8 Simplify.

$$x^3 - 5x^2 - 10x^3 + 8x + 9x^2$$

9 Simplify.

$$xy + 3x + 8y - x + 5 - 2y$$

10 Simplify. (Careful! This one is tricky.)

$$6yx + 3x^2y - 4y^2x + 2xy$$

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Identifying and Combining 'Like' Terms

AB-SP 1

Instructions: For each problem, if the pair of terms shown are 'Like' Terms, then combine them into a single term in the space provided. Otherwise, write "not like" if the terms can't be combined.

1. $4x$ and $6x$ — 10x
2. $5x$ and $5y$ — not like
3. $2y^2$ and $2y^2$ — _____
4. x^2 and x^2 — _____
5. b^2 and $2b^3$ — _____
6. $4x^2$ and $-x^2$ — _____
7. xy^2 and yx^2 — _____
8. $-x^2$ and $-x^2$ — _____
9. $-5b^2$ and $-b^2$ — _____
10. $4x^2$ and $-4x^2$ — _____
11. $3ab^2$ and $4ab^2$ — _____
12. $4a^2$ and $-a^4$ — _____
13. $-a^4$ and $2y^4$ — _____
14. $10x^2$ and $-7x^2$ — _____
15. $8y$ and $8y$ — _____
16. $4x^2$ and $-x^2$ — _____
17. $-xy$ and $-2yx$ — _____
18. $\frac{1}{2}x$ and $\frac{1}{2}x$ — _____
19. $6c^2$ and $2c^2$ — _____
20. $-x$ and $-10x$ — _____
21. $4y^5$ and xy^4 — _____
22. $\frac{1}{3}x$ and $\frac{1}{3}x$ — _____

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Simplifying Basic Polynomials - Set 1

AB-SP 2

Instructions: Simplify each polynomial below by combining 'like' terms. Do your best to arrange the terms of the simplified polynomial in order from highest to lowest degree.

1. $5x + 10 - 2x + 5$

   $3x + 15$

2. $12x + 10 - 2x - 8$

3. $3x^2 - 4 - 2x^2 + 5$

4. $5x + 4y + 7x + y$

5. $3b + 2b + b + 2$

6. $-3b - 2b - b - 2$

7. $-y + 7 + y + 3$

8. $3x + 4x^2 - 5x^2 + 1 + 15$

9. $-x^3 + x^3 + x + 4$

10. $-2x^3 + 4x^2 + 9 + x^2$

11. $3y^2 - y^2 - 2x^2 + x$

12. $-3ab + 5a + 7ab + 2b$

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Simplifying Basic Polynomials - Set 2

AB-SP 3

Instructions: Simplify each polynomial below by combining 'like' terms. Do your best to arrange the terms of the simplified polynomial in order from highest to lowest degree.

1. $3a + b - 4b + 5a$

   $8a - 3b$

2. $x + 10x + 2y - 8$

3. $10x^2 - 4 - 2x^2 + x^2$

4. $3b + a - b + 2a$

5. $6y^3 - y^3 - 2x^2 + x^2$

6. $-2y + 2 + 3y + 1$

7. $1 + 3x + 4x^2 - 5x + 8$

8. $12x + 3y + 6x + y$

9. $-4a^3 + 1 + a^3 + 7a^2$

10. $-2 + 35b - 8b - 2b$

11. $-2b + 3ab + a + 9ab$

12. $-x^3 + 2x + 2x^3 - x + x^2$

math Antics Worksheets

Name:

Date:

Simplifying Longer Polynomials

AB-SP 4

Instructions: Simplify each polynomial below by combining 'like' terms. Do your best to arrange the terms of the simplified polynomial in order from highest to lowest degree.

1. $5x + 7 - 3x^3 + 5 - x^3$

   $-4x^3 + 5x + 12$

2. $8x^2 + 20 - 2x^2 - 4$

3. $15 + 3y - y + 5y - 1$

4. $-5x + 4y + 7y - 8 + 2x$

5. $x + 2x^4 + 9x - 10x^4$

6. $-3a - 2ab - a + 2abc$

7. $24 + b^2 - y + 7b^2 + 2y + 4$

8. $3xy + 6 + 4x^5 - 5xy + 9$

9. $x^2 + x^3 - x^4 + x - x^3 + x^4$

10. $-2x^3 + 8x^3 + 9x^3 - x^3$

11. $6a^3 - b^2 - 2a^3 + 2c - 2b^2$

12. $x^2y + 4xy + 5yx + 2y^2x$

math Antics Worksheets

Name:

Date:

Simplifying Realy Long Polynomials (optional)

AB-SP 5

Instructions: Simplify each polynomial below by combining 'like' terms. Do your best to arrange the terms of the simplified polynomial in order from highest to lowest degree.

1. $x^2 + 5y - 5 + 8x^3 + 4 + 7y - 4x^2 + 10 - 4x^2$

   $8x^3 - 7x^2 + 12y + 9$

2. $8x - 7x^3 + 14 + 7x - x^2 - 6 - x^3 + 4x^2$

3. $10c + b + 7a - 5c - a + 5b + 4b + 8a - 6c$

4. $28 + x^2 + 7y^2 - 2xy + 3x^2 + 4 + 10xy - 6y^2$

5. $a + a^2 + 4a^2 - 5a - a^2 + 9a + 8a^2 - a$

6. $20 + 12x^2 - 5 - 10x + 4x^2 + 8x^3 + x - 7x^3$

math Antics
Exercises

Name:

Date:

The Distributive Property

1 Apply the Distributive Property

$$5(x + 3)$$

2 Apply the Distributive Property

$$-8(a + b - c)$$

3 Apply the Distributive Property

$$x(x + y)$$

4 Apply the Distributive Property

$$a(a^2 + a + 1)$$

5 Apply the Distributive Property

$$4(3x^2 + 2x - 5)$$

6 Apply the Distributive Property

$$2x(3x - 5y)$$

7 Apply the Distributive Property in reverse to factor out a '2' from this polynomial.

$$2a^2 - 2b^2 + 2c^2$$

8 Apply the Distributive Property in reverse to factor out a '2' from this polynomial.

$$8a + 10b + 2c$$

9 Apply the Distributive Property in reverse to factor out an 'x' from this polynomial.

$$7x^3 - 8x^2 - x$$

10 Can you factor anything out of this polynomial? If so, then go for it...

$$6x^2 + 9x$$

math Antics Worksheets

Name: _____

Date: _____

The Distributive Property Pattern

AB-TDP 1

Instructions: The Distributive Property pattern shows two equivalent forms of an expression involving a factor multiplied by a group. In these problems, if you are given the grouped form, then use the Distributive Property to re-write the expression without the group. But if you are given the distributed form, then apply the Distributive Property in *reverse* to "factor out" the common factor. See examples:

	grouped form		distributed form
1	$a(b + c)$	=	$ab + ac$
2	$2(x - y)$	=	$2x - 2y$
3	$5(a - b)$	=	
4		=	$ax + ay$
5	$4(a + b - c)$	=	
6	$2(x - y + z)$	=	
7		=	$xa + xb + xc$
8		=	$yx^2 + yx$
9	$-2(a + b + c)$	=	
10		=	$(-3x) + (-3y)$
11	$2(5a + 5b)$	=	
12		=	$5x + 10y$

math Antics Worksheets

Name:

Date:

Applying the Distributive Property - Set 1

AB-TDP 2

Instructions: Apply the Distributive Property to eliminate the group in each expression.

1 $4(2x + 10)$

$4(2x) + 4(10)$

$8x + 40$

2 $5(a + 2b)$

3 $-2(x + 1)$

4 $-3(x - 1)$

5 $a(a + b + c)$

6 $x(x^2 - x - 1)$

7 $3(2x + b + 6c)$

8 $-1(5x - 2y + 7z)$

9 $2x(y + 4)$

10 $x^2(x - 1)$

11 $-a(a - 2b)$

12 $3x(4x + 5y)$

math Antics Worksheets

Name:

Date:

Applying the Distributive Property - Set 2

AB-TDP 3

Instructions: Apply the Distributive Property to eliminate the group in each expression.

1 $-5(5x^2 + x - 2)$

$(-5)(5x^2) + (-5)(x) + (-5)(-2)$

$-25x^2 - 5x + 10$

2 $y(3y + 5)$

3 $-3(x^2 - 5)$

4 $b(3a - 4b + c)$

5 $9(x + ax + 10)$

6 $4x(x^2 - y^2)$

7 $-x^2(x + y - 1)$

8 $6(2x - 5y + 4z)$

9 $xy(x + y)$

10 $5(-a^3 - 2a^2 + 1)$

11 $4y(2y - x + 10)$

12 $-2(-2x - 3y - 4z)$

math Antics Worksheets

Name: _____

Date: _____

Identifying Common Factors

AB-SP 4

Instructions: In order to apply the Distributive Property in reverse, you need to be able to identify factors that are common to each term in a polynomial. You can only factor something out if it's a factor of *every* term. For each polynomial, list any factors that all of its terms have in common. (If there are no common factors, write "none")

		common factors
1	$2x^2 + 6x + 4$	2
2	$3a^3 + 3a^2 + 3a$	3a
3	$bx + by - bz$	
4	$5a - 10b - 20c$	
5	$axy + bxc - yzx$	
6	$2xy + 2xa + 2xb$	
7	$x^6 + x^4 + x^2$	
8	$3a - 6b - 12c$	
9	$ay + by + bc$	
10	$-2x + (-2y) + (-2z)$	
11	$-4x^2 + 8x + 16$	
12	$6x^3 + 2x^2 - 4x$	

math Antics Worksheets

Name: _____

Date: _____

"Factoring Out" - Set 1

AB-TDP 5

Instructions: Look at each polynomial to identify the common factor(s) in each term. Then, use the Distributive Property in reverse to factor them out.

1. $6x + 24$

   $6(x) + 6(4)$

   $6(x + 4)$

2. $5a^2 - 10a$

   $5a(a) - 5a(2)$

   $5a(a - 2)$

3. $2x^2 + 20$

4. $4a - 4b - 4c$

5. $3x^2 + 3y^2 + 3$

6. $9y - 99$

7. $ab + bc$

8. $2xy - 2xz$

9. $(-7)a^2 + (-7)b^2$

10. $5x + 40y + 25$

11. $-xy - 2xz$

12. $3x^3 - 6x^2 - 9x$

math Antics Worksheets

Name: _____

Date: _____

"Factoring Out" - Set 2

AB-TDP 6

Instructions: Look at each polynomial to identify the common factor(s) in each term. Then, use the Distributive Property in reverse to factor them out.

1 $2x^2 + 2x + 6$

$2(x^2) + 2(x) + 2(3)$

$2(x^2 + x + 3)$

2 $x^3 + x^2 - x$

$x(x^2) + x(x) - x(1)$

$x(x^2 + x - 1)$

3 $5x^2 + 5x + 5$

4 $3a - 6b - 9c$

5 $ax + ay^2 + az$

6 $2ax + 2ay + 2az$

7 $4x + 16y$

8 $-5x - 5y$

9 $7a^2 + 7ab$

10 $-2x + (-4y) + (-6z)$

11 $cba + bxa + xyb$

12 $-x^3 - x^2 - x$

math Antics
Exercises

Name:

Date:

Laws of Exponents

1 Simplify this expression.

$$5^0 =$$

2 Simplify this expression.

$$y^1 =$$

3 Simplify this expression.

$$2^{-1} =$$

4 Re-write <u>without</u> using fraction form.

$$\frac{1}{x^3} =$$

5 Simplify this expression.

$$(x^2)^5 =$$

6 Simplify this expression.

$$(x^a)^b =$$

7 Simplify this expression.

$$a^2 \cdot a^4 =$$

8 Simplify this expression.

$$a^2 \cdot a^{-4} =$$

9 Simplify this expression.

$$\frac{x^7}{x^5} =$$

10 Can this be simplified? If "yes", then simplify it. If "no", then explain why.

$$\frac{a^2}{b^8} =$$

11 Simplify this expression.

$$(ab)^3 =$$

12 Simplify this expression.

$$\left(\frac{x}{2y}\right)^2 =$$

math Antics Worksheets

Name:

Date:

Laws of Exponents - Reference Chart

A-LOE 1

$$x^0 = 1$$

$$x^1 = x$$

Exponents 0 and 1

These laws were discussed in the video called "Exponents in Algebra". The first law tell you that anything raised to the 0th power is always 1. The second law tells you that anything raised to the 1st power is just itself.

$$x^{-n} = \frac{1}{x^n}$$

Negative Exponents

This important law helps us understand that negative exponents are essentially repeated division. The practical application is that it lets you re-write an expression with a negative exponent in inverse form as 1 over the exact same expression with a positive exponent.

$$(x^m)^n = x^{mn}$$

Taking a Power of a Power

This law shows that if you have an exponential expression that is raised to another power, you can simplify it by multiplying the two exponents together.

$$x^m x^n = x^{m+n}$$

$$\frac{x^m}{x^n} = x^{m-n}$$

Multiplying or Dividing Exponential Expressions

These laws show how to simplify exponential expressions that have the same base. The base MUST be exactly the same for these to work.
The first law says that if the expressions are being *multiplied*, you can simplify by *adding* the exponents.
The second law says that if the expressions are being *divided*, you can simplify by *subtracting* the bottom exponent from the top..

$$(xy)^m = x^m y^m$$

$$\left(\frac{x}{y}\right)^n = \frac{x^n}{y^n}$$

Distributing Exponents

These laws show how you can distribute (or un-distribute if you reverse them) a common exponent to different bases.
The first law shows how distributing an exponent works with variables (or expressions) that are being *multiplied*.
The second law shows how distributing an exponent works with variables (or expressions) that are being *divided*.

math Antics Worksheets

Name:

Date:

Calculating Integer Exponents

A-LOE 2

Instructions: Use the first three laws you learned in the video to calculate or simplify these expressions. Leave any fraction answers in fraction form.

1. $8^1 - 5^0 = 8 - 1 = 7$
2. $(2x)^{-1} = \frac{1}{2x}$
3. $2^{-3} =$
4. $2 + 2^{-1} =$
5. $(x + 3)^0 =$
6. $3^{-2} =$
7. $5^0 + 2^0 - 9^0 =$
8. $4^{-x} =$
9. $(x)(x^{-1}) =$
10. $x^0 - 1^2 =$
11. $4^0 + 4^{-1} =$
12. $\frac{1}{2^{-1}} =$
13. $5^{-2} =$
14. $(x^2 + 1)^1 =$
15. $a^{-b} =$
16. $(x^2)(x^{-2})^1 =$

math Antics Worksheets

Name:

Date:

Simplifying a Power of a Power

A-LOE 3

Instructions: Use the fourth law you learned in the video lesson to simplify these expressions. (You'll also need to use the first three laws in some of the problems.)

1. $(x^2)^4 = x^{2 \cdot 4} = x^8$

2. $(x^2)^{-1} = x^{2(-1)} = x^{-2} = \frac{1}{x^2}$

3. $(2^2)^2 =$

4. $(a^4)^3 =$

5. $(x^{-1})^3 =$

6. $(4^2)^{-1} =$

7. $(3^2)^2 =$

8. $(x^{-2})^{-4} =$

9. $(y^5)^3 =$

10. $(8^{-2})^0 =$

11. $\left((x^2)^3\right)^4 =$

12. $(7^{-2})^{-1} =$

13. $\frac{1}{(x^{-1})^2} =$

14. $(a^2)^5 =$

15. $(x^2)^{\frac{1}{2}} =$

16. $\left((x^{-1})^{-1}\right)^{-1} =$

math Antics Worksheets

Name:

Date:

Multiplying and Dividing Expressions with Exponents

A-LOE 4

Instructions: Use the 5th and 6th laws you learned in the video lesson to simplify these expressions.

1 $(y^x)(y^{2x}) = y^{x+2x} = y^{3x}$

2 $\frac{x^2}{x^3} = x^{2-3} = x^{-1} = \frac{1}{x}$

3 $(3^2)(3^2) =$

4 $(7^{-5})(7^4) =$

5 $\frac{a^7}{a^3} =$

6 $x^9 x^2 =$

7 $\frac{5^y}{5^x} =$

8 $\frac{x^{2a}}{x^{-a}} =$

9 $(x^{-1})(x^{-5}) =$

10 $\frac{(x+1)^3}{(x+1)^2} =$

11 $b^{-2} b^2 =$

12 $\left(\frac{1}{2}\right)^4\left(\frac{1}{2}\right)^{-2} =$

13 $a^5 a^3 =$

14 $\frac{y^1}{y^x} =$

15 $\frac{x^{-5}}{x^{-5}} =$

16 $(a^8)(a^{-7}) =$

math Antics Worksheets

Name:

Date:

Distributing and 'Un-Distributing' Exponents

A-LOE 5

Instructions: Use the last two laws learned in the video to distribute the exponent.

1. $(2x)^2 = 2^2 x^2 = 4x^2$
2. $\left(\frac{a}{b}\right)^4 = \frac{a^4}{b^4}$
3. $\left(\frac{x}{4}\right)^2 =$
4. $(ab)^3 =$
5. $(5y)^{-2} =$
6. $\left(\frac{2x}{3}\right)^2 =$
7. $(6ab)^2 =$
8. $\left(\frac{x}{y}\right)^5 =$

Instructions: Use the last two laws learned in the video to 'un-distribute' the commmon exponent.

1. $x^4 y^4 = (xy)^4$
2. $\frac{a^2}{5^2} = \left(\frac{a}{5}\right)^2$
3. $x^2 y^2 z^2 =$
4. $\frac{x^2}{(x-1)^2} =$
5. $\frac{b^x}{a^x} =$
6. $x^{-2} y^{-2} =$
7. $8^n y^n =$
8. $\frac{x^2}{3^2 y^2} =$

math Antics Worksheets

Name:

Date:

Laws of Exponents in Combination - Set 1

A-LOE 6

Instructions: Simplify these expresssions using all the laws you learned in the video lesson. Be sure to show your work!

1 $(3x)^2 + \frac{x^5}{x^3}$

$3^2 x^2 + x^{5-3}$

$9x^2 + x^2$

$10x^2$

2 $\left(\frac{a}{2}\right)^2 - \frac{1}{a^0}$

$\frac{a^2}{2^2} - \frac{1}{1}$

$\frac{a^2}{4} - 1$

3 $\left(\frac{a}{b^2}\right)^4$

4 $(a^2)^3 (a^4)^{-2}$

5 $\left(\frac{x^{10}}{x^7}\right)(x^4)^3$

6 $(2b)^3 - \frac{b^{10}}{b^7}$

7 $(3x^2)^0 + (a^{-5})^0$

8 $(x^n)(x^0)(x^{-n})$

9 $\left(\frac{4}{y^3}\right)^2 + 4(y^{-1})^6$

10 $\frac{2}{(x^2)^3} - \frac{x^0}{x^6}$

11 $b^{-2} - \frac{b^4}{b^6}$

12 $(a^{-1})^{-3} (b^{-3})^1$

math Antics Worksheets

Name:

Date:

Laws of Exponents in Combination - Set 2

A-LOE 7

Instructions: Simplify these expresssions using all the laws you learned in the video lesson. Be sure to show your work!

1 $(4a)^2 - (a^3)(a^{-1})$

2 $(-2x)^2 + \dfrac{x^9}{x^7}$

3 $\left(\dfrac{x^3}{y^{-2}}\right)^{-2}$

4 $\dfrac{x^4}{x^5} + \left(\dfrac{a}{a^3}\right)^2$

5 $(x^{-n})(x^0) + (x^n)^2$

6 $\dfrac{b^8}{b^0} + \dfrac{b^{15}}{b^7} + (b^2)^4$

7 $(3b^2 + 7x^{-5})^0$

8 $\dfrac{y^{15}}{y^3} + (2y^4)^3$

9 $(x^3)^{-3}(x^{-2})^{-5}$

10 $\left(\dfrac{5x^3}{2y^2}\right)^3$

11 $\dfrac{9}{(3x^{-1})^2} - \dfrac{x^0}{x^{-2}}$

12 $(b^9)^{-1}\left(\dfrac{b^5}{b^8}\right)$

math Antics
Exercises

Name:

Date:

Graphing on the Coordinate Plane

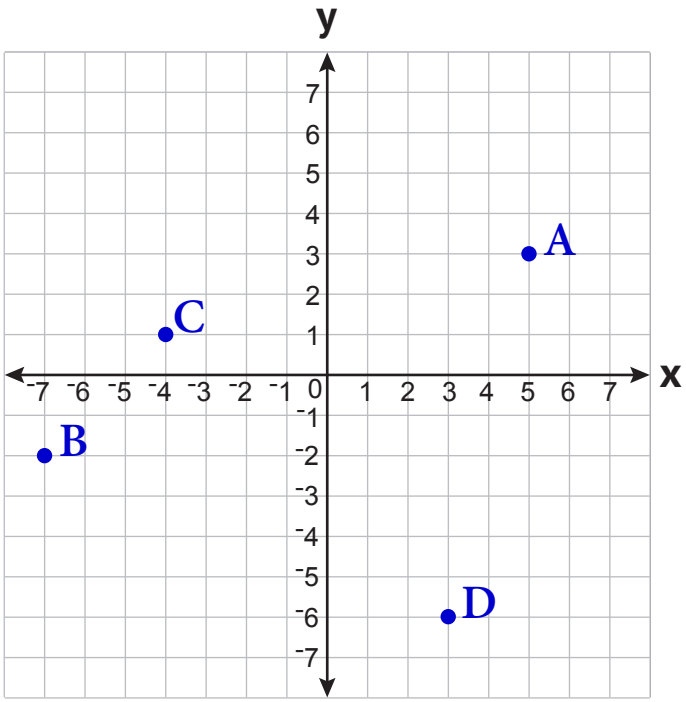
1 What are the coordinates of Point A and what quadrant is it in?

2 What are the coordinates of Point B and what quadrant is it in?

3 What are the coordinates of Point C and what quadrant is it in?

4 What are the coordinates of Point D and what quadrant is it in?

Use this graph to answer questions 1 through 4.



5 Plot this coordinate on the graph and label it Point H.

(5,0)

6 Plot this coordinate on the graph and label it Point I.

(-3,3)

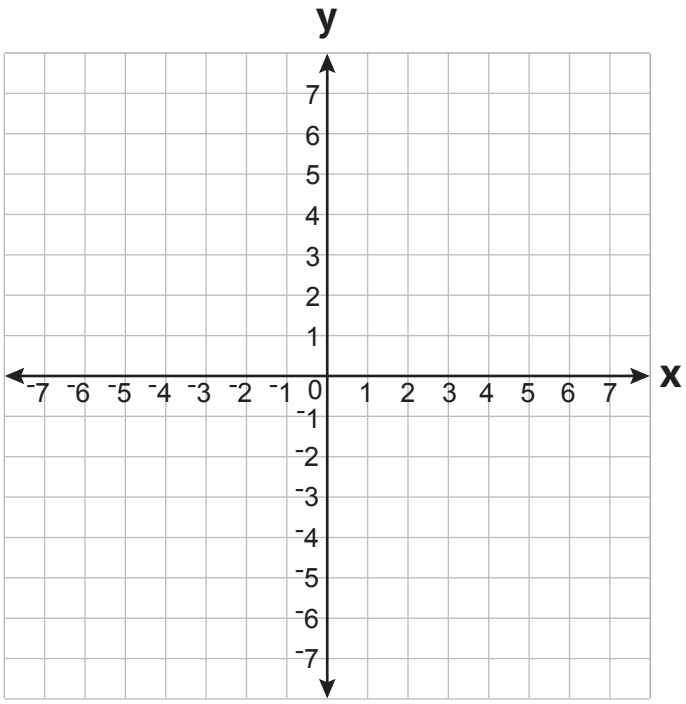
7 Plot this coordinate on the graph and label it Point J.

(0,6)

8 Plot this coordinate on the graph and label it Point K.

(-5,-7)

Use this graph to answer questions 5 through 8.



math Antics Worksheets

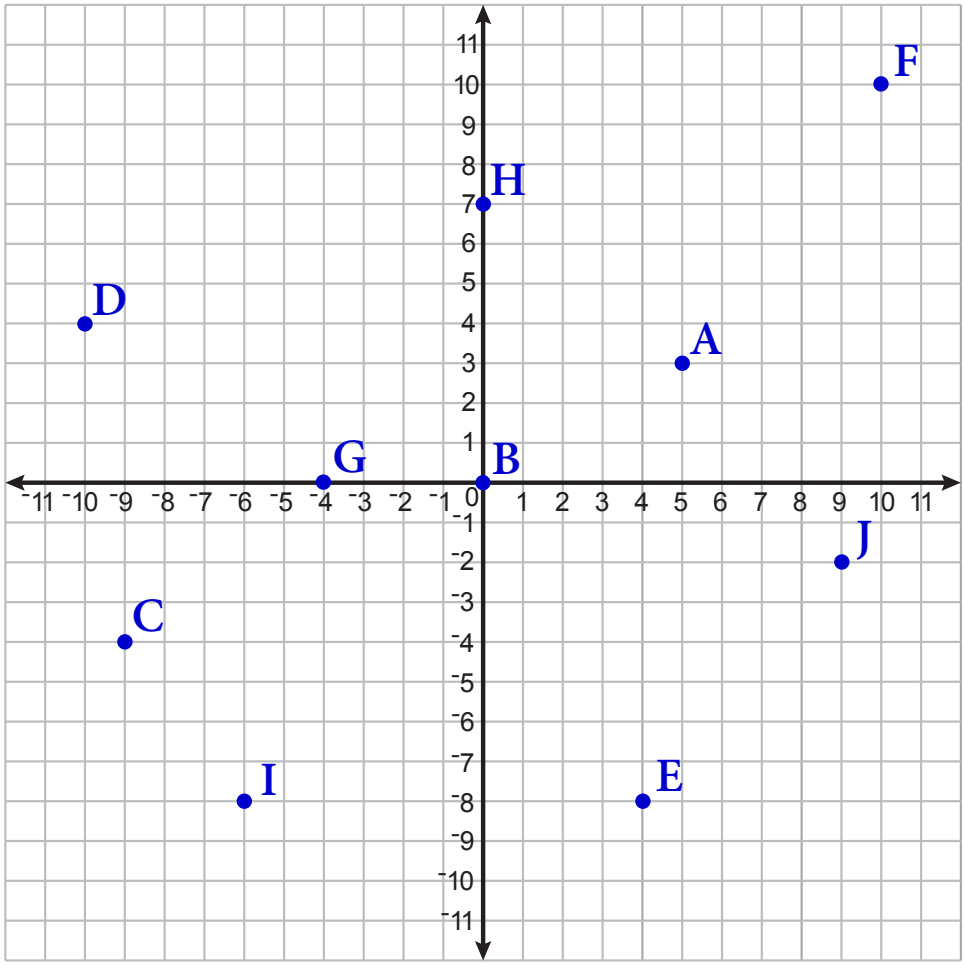
Name: _____

Date: _____

Identifying Coordinates

AB-GCP 1

Instructions: For each point on this graph, identify its coordinates and write them in the spaces provided in questions 1 through 10 below.



1. Point A (5,3)
2. Point B _____
3. Point C _____
4. Point D _____
5. Point E _____
6. Point F _____
7. Point G _____
8. Point H _____
9. Point I _____
10. Point J _____

math Antics Worksheets

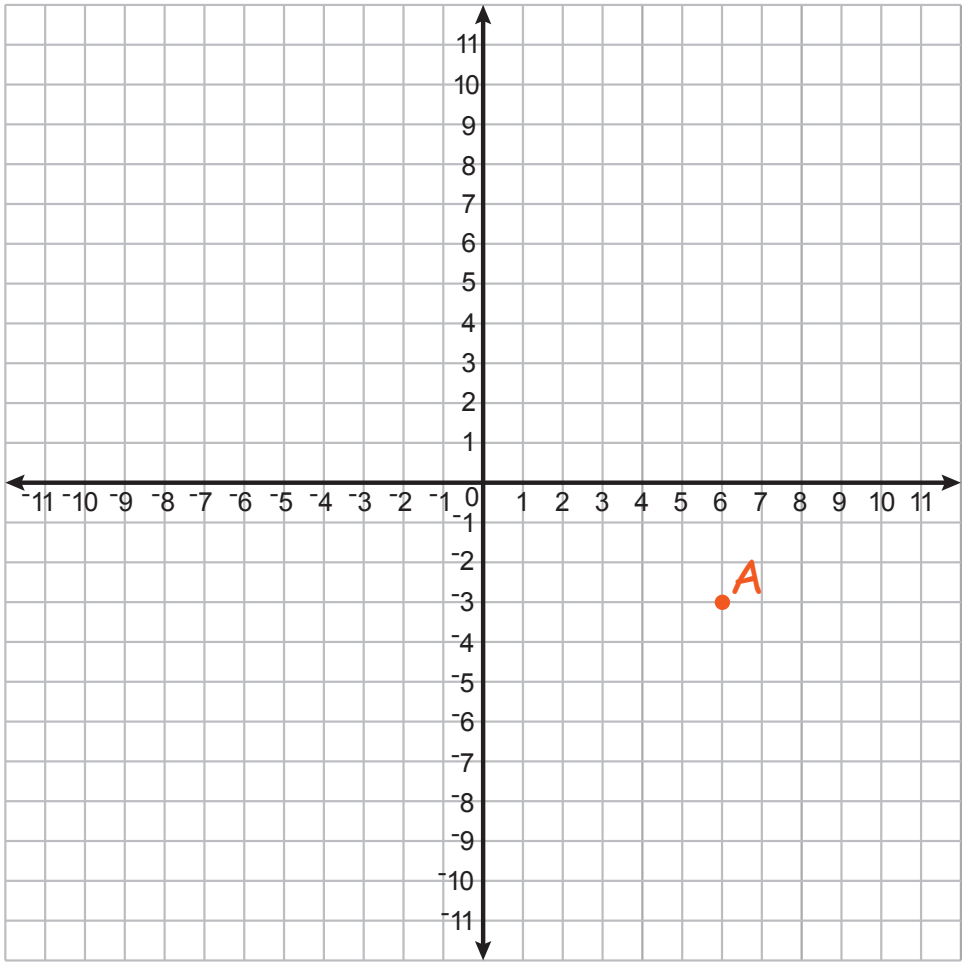
Name:

Date:

Plotting Coordinates

AB-GCP 2

Instructions: Plot each coordinate in problems 1 through 10 on this graph. Label the points 'A' through 'J' as indicated.



1. Plot Point A (6,-3)
2. Plot Point B (-4,10)
3. Plot Point C (0,-10)
4. Plot Point D (8,-7)
5. Plot Point E (-7,-3)
6. Plot Point F (8,0)
7. Plot Point G (-1,1)
8. Plot Point H (7,7)
9. Plot Point I (-9,6)
10. Plot Point J (-10,-9)

math Antics Worksheets

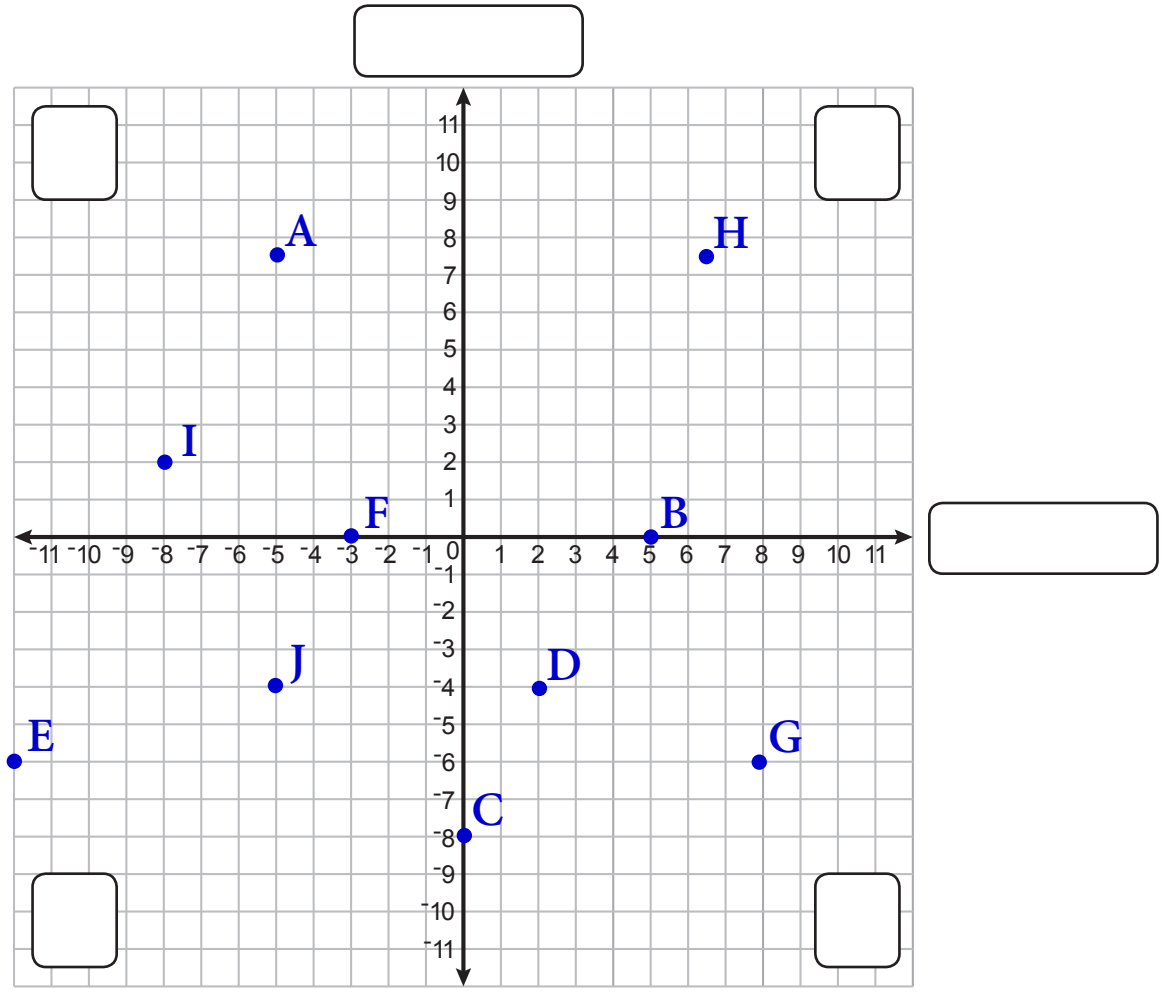
Name: _____

Date: _____

Quadrants and Axes

AB-GCP 3

Instructions: In the boxes provided, label the four Quadrants and the two Axes on this Coordinate Plane. Then identify the location of the points in problems 1 through 10 below.



1 Point A II

2 Point B X axis

3 Point C _____

4 Point D _____

5 Point E _____

6 Point F _____

7 Point G _____

8 Point H _____

9 Point I _____

10 Point J _____

math Antics Worksheets

Name:

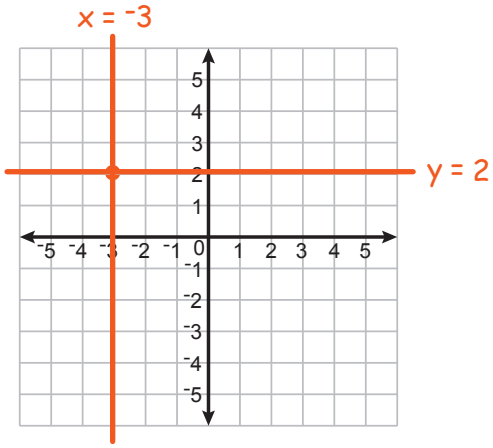
Date:

Plotting Points using Intersections

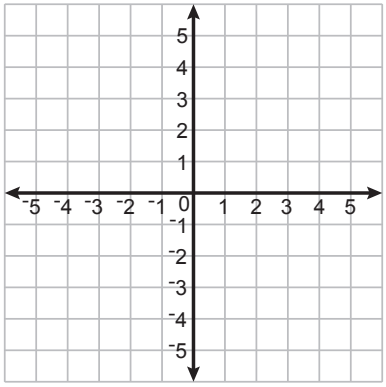
AB-GCP 4

Instructions: In the video, we show how to plot points by drawing two perpendicular lines that represent all possible locations for the x and y values in a coordinate. The intersection of the two lines is the location of the point. Use that intersection method to plot these points.

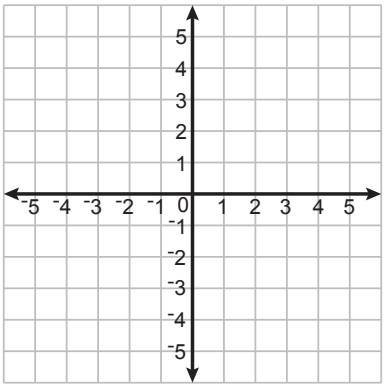
1 (-3, 2)



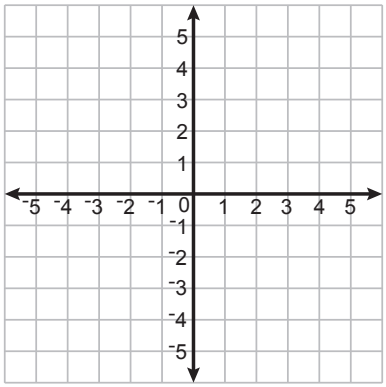
2 (4, 1)



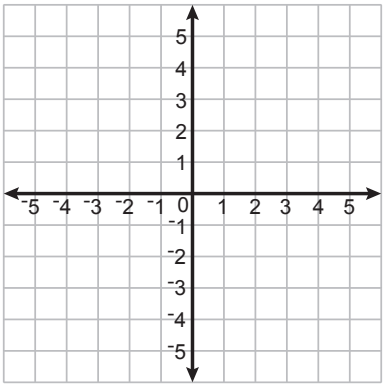
3 (2,-4)



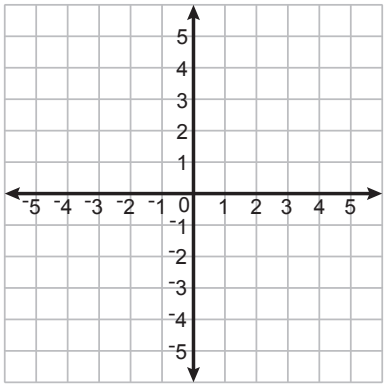
4 (-3,-5)



5 (5, 2)



6 (-3, 3)



math Antics
Exercises

Name: _____

Date: _____

What Are Functions?

1 Fill in the blank.

The input set of a function is called the _____ and the output set is called the _____

2 True or False?

Functions aren't allowed to have "one-to-many" relations.

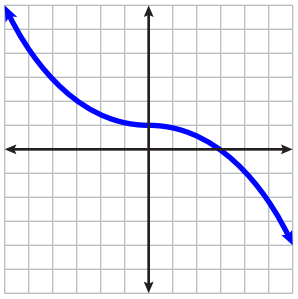
☐ True ☐ False

3 Complete this function table.

$y = 2x - 1$

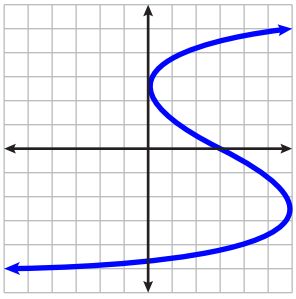
Input x	Output y
3	5
2	
1	
0	
-1	

4 Is this a function?
(Hint: Use the vertical line test.)



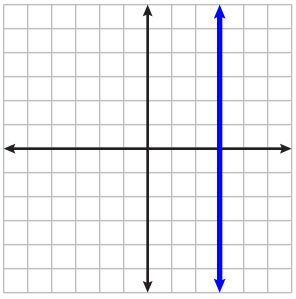
☐ Yes
☐ No

5 Is this a function?
(Hint: Use the vertical line test.)



☐ Yes
☐ No

6 Is this a function?
(Hint: Use the vertical line test.)



☐ Yes
☐ No

7 Evaluate.

Let $f(x) = x^2 + 1$
What is $f(3)$?

8 Evaluate.

Let $f(x) = x^2 + 3x$
What is $f(-1)$?

math Antics Worksheets

Name:

Date:

Function Tables

AB-WAF 1

Instructions: Complete each Function Table by calculating the output 'y' (or f(x)) for each input value 'x'.

1 $y = 3x$

Input x	Output y
0	
1	
2	6
3	
4	

2 $f(x) = x + 2$

Input x	Output f(x)
-2	
-1	
0	2
1	
2	

3 $y = 2x - 3$

Input x	Output y
2	
4	5
6	
8	
10	

4 $f(x) = x - 5$

Input x	Output f(x)
-2	-7
-1	
0	
1	
2	

5 $y = \frac{x}{2}$

Input x	Output y
-10	
-4	-2
0	
4	
10	

6 $f(x) = \frac{x}{2} + 3$

Input x	Output f(x)
-8	-1
-6	
-4	
-2	
0	

math Antics Worksheets

Name: _____

Date: _____

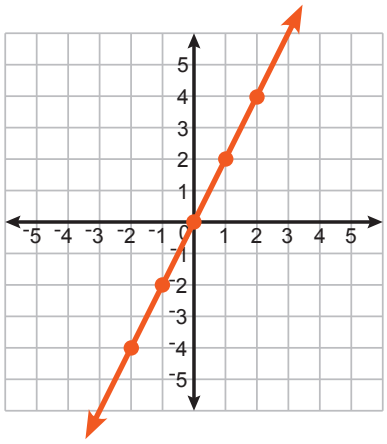
Function Tables & Graphs

AB-WAF 2

Instructions: Complete each Function Table and then graph the function. Remember that each row of the function table forms an ordered pair (x , y).

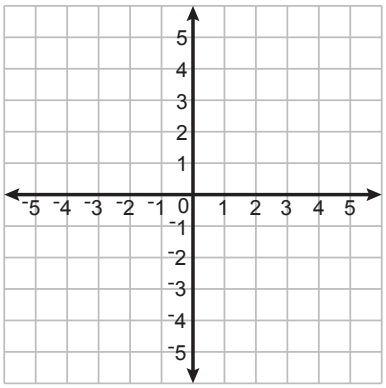
1 $y = 2x$

Input x	Output y
-2	-4
-1	-2
0	0
1	2
2	4



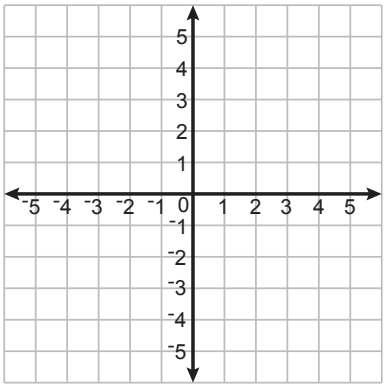
2 $y = x - 2$

Input x	Output y
-2	
0	
2	
4	
6	



3 $y = x^2$

Input x	Output y
-2	
-1	
0	
1	
2	



math Antics Worksheets

Name: _____

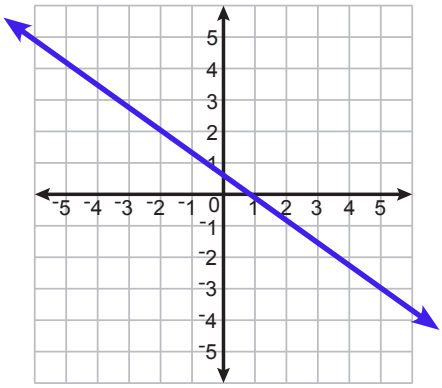
Date: _____

The Vertical Line Test - Set 1

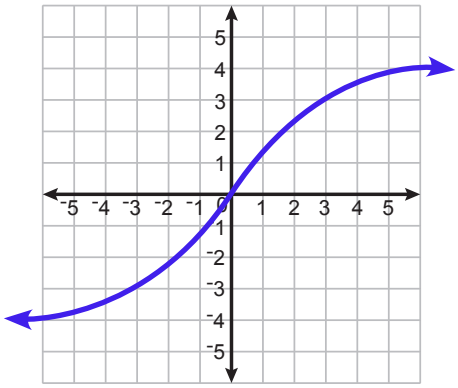
AB-WAF 3

Instructions: Use the Vertical Line Test to determine if each of these graphs qualifies as a function.

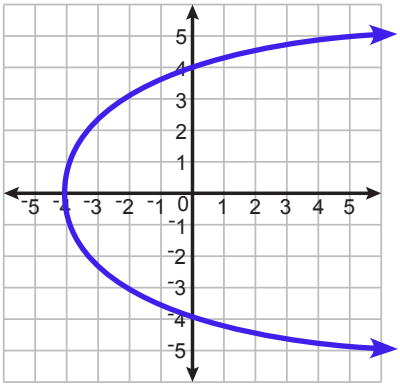
1 Function? ☒ Yes ☐ No



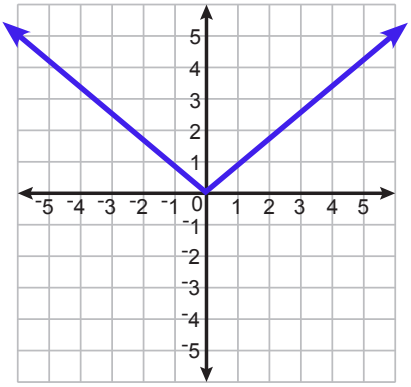
2 Function? ☐ Yes ☐ No



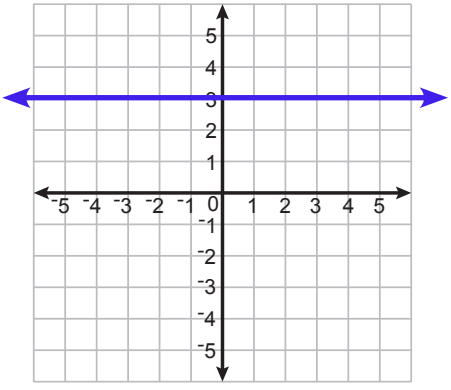
3 Function? ☐ Yes ☐ No



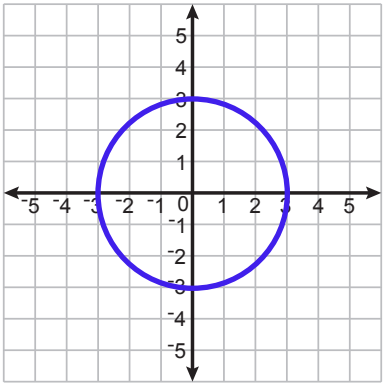
4 Function? ☐ Yes ☐ No



5 Function? ☐ Yes ☐ No



6 Function? ☐ Yes ☐ No



math Antics Worksheets

Name: _____

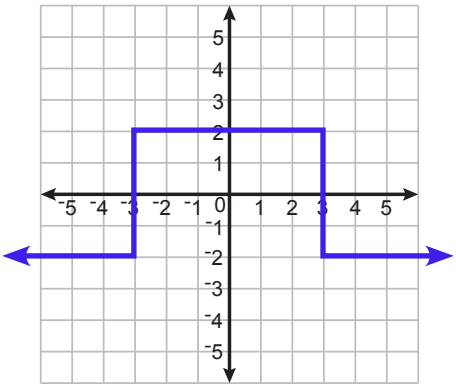
Date: _____

The Vertical Line Test - Set 2

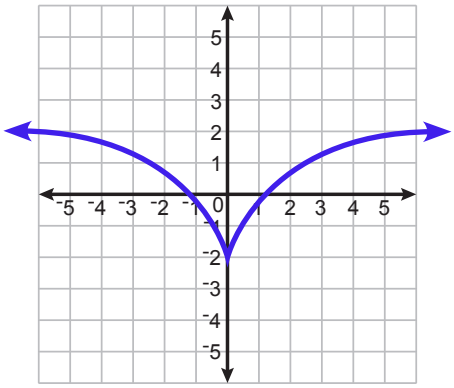
AB-WAF 4

Instructions: Use the Vertical Line Test to determine if each of these graphs qualifies as a function.

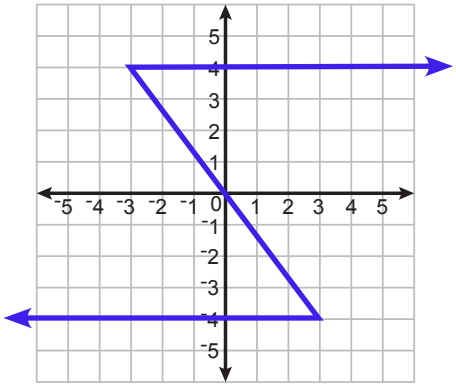
1 Function? ☐ Yes ☒ No



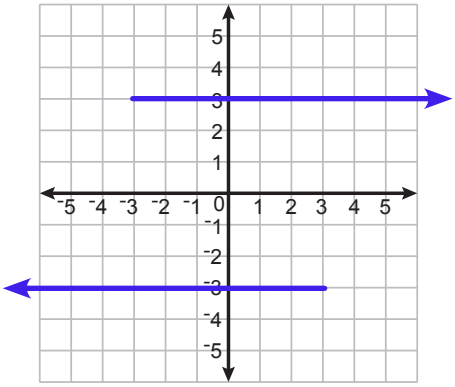
2 Function? ☐ Yes ☐ No



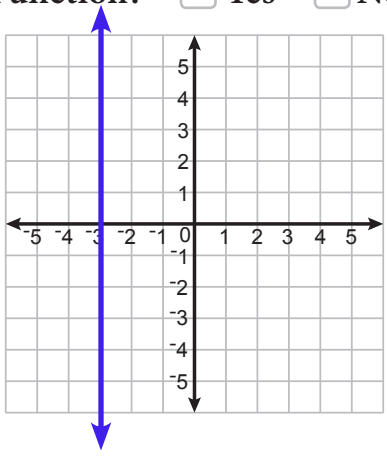
3 Function? ☐ Yes ☐ No



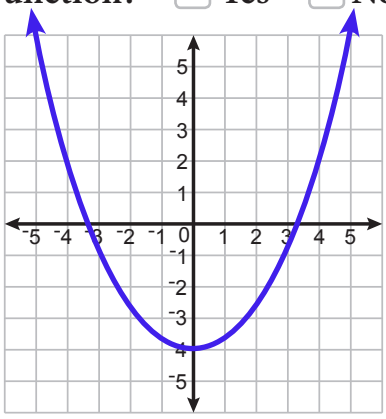
4 Function? ☐ Yes ☐ No



5 Function? ☐ Yes ☐ No



6 Function? ☐ Yes ☐ No



math Antics Worksheets

Name:

Date:

Evaluating Functions

AB-WAF 5

Instructions: Evaluate each function for the specified value. In other words, calculate the function's output value for the given input value.

1 Let $f(x) = 4x - 3$

Evaluate $f(2)$

$f(2) = 4(2) - 3$

$= 8 - 3$

$f(2) = 5$

2 Let $f(x) = 2x + 1$

Evaluate $f(0)$

3 Let $g(a) = a^2 + 1$

Evaluate $g(-2)$

4 Let $f(x) = x^2 + x$

Evaluate $f(3)$

5 Let $g(a) = \frac{a}{2} + 3a$

Evaluate $g(^-4)$

6 Let $f(t) = \frac{t^2}{2} + t$

Evaluate $f(^-4)$

7 Let $f(x) = 3x^2 - 2x$

Evaluate $f(5)$

8 Let $g(a) = 3a^3 + 5$

Evaluate $g(^-1)$

math Antics
Exercises

Name: _____

Date: _____

Basic Linear Functions

1 Fill in the blank.

In the equation $y = mx + b$,
'm' is the _____ of the line
and 'b' is the _____ .

2 What are the slopes of these linear functions?

$y = 4x - 3$ _____

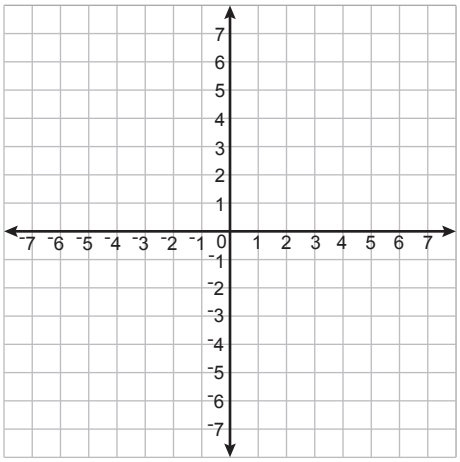
$y = -\frac{1}{3}x$ _____

3 Complete the table for this linear function.

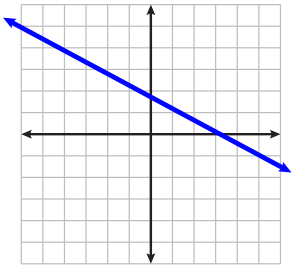
$y = 2x - 3$

Input x	Output y
5	
2	
1	
0	
-2	

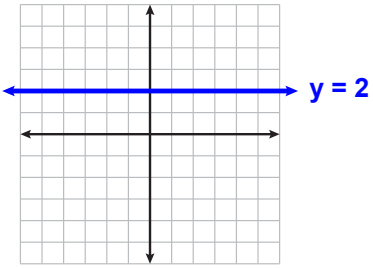
4 Graph the function from problem 3



5 Does this line have a positive or a negative slope?



6 What is the slope of this line?



7 Find the slope and y-intercept of this linear function.
(Hint: rearrange into y = mx + b form.)

$2(x - 3) = y + 1$

8 Find the slope and y-intercept of this linear function.
(Hint: rearrange into y = mx + b form.)

$2x + x = 4(y - 1)$

math Antics Worksheets

Name: _____

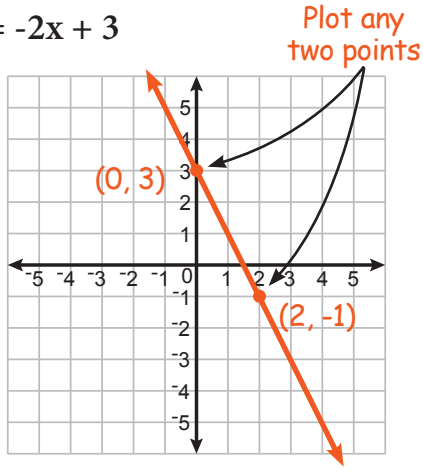
Date: _____

Graphing Linear Functions

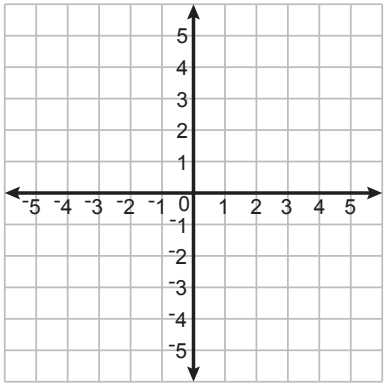
AB-BLF 1

Instructions: Graph each linear function on the coordinate plane. (Hint: you only need to plot two points to graph the line. Then you can use a ruler to draw a straight line through those two points.)

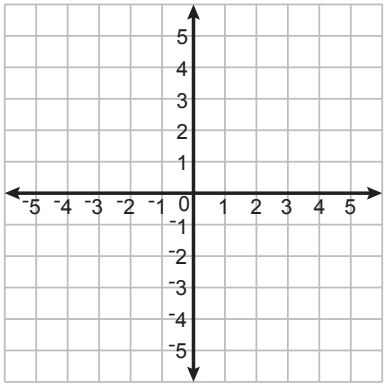
1 $y = -2x + 3$



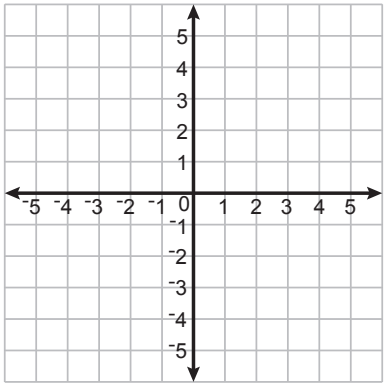
2 $y = 1x + 2$



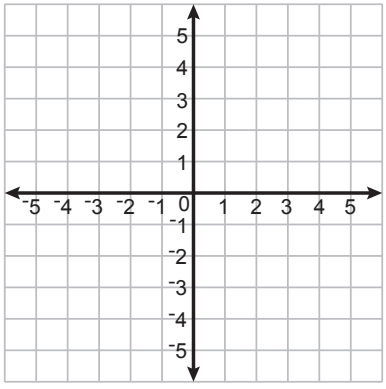
3 $y = -1x + 2$



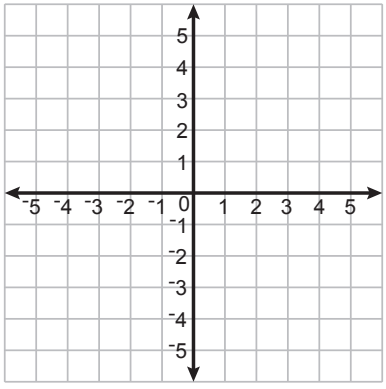
4 $y = -x - 2$



5 $y = 4x - 4$



6 $y = \frac{x}{2} + 3$



math Antics Worksheets

Name: _____

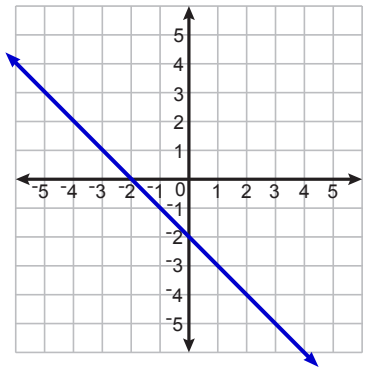
Date: _____

Slope & y-intercept (Graphs)

AB-BLF 2

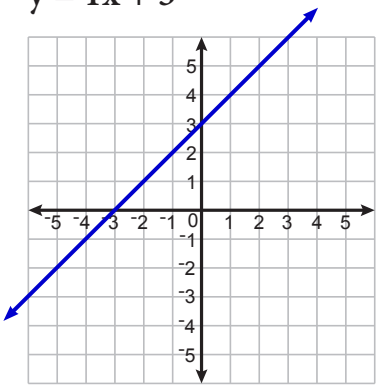
Instructions: Determine the slope and y-intercept of each linear function below.

1 $y = -x - 2$



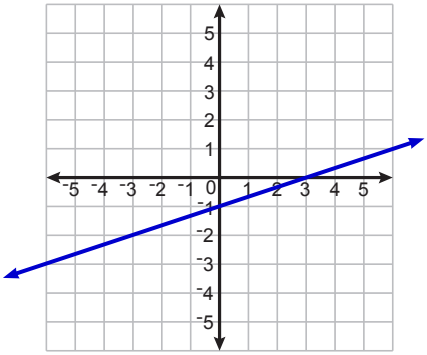
Slope: -1 y-intercept: -2

2 $y = 1x + 3$



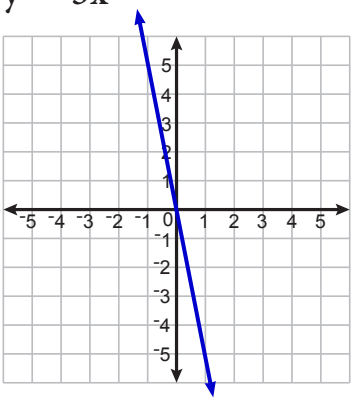
Slope: _____ y-intercept: _____

3 $y = \frac{x}{3} - 1$



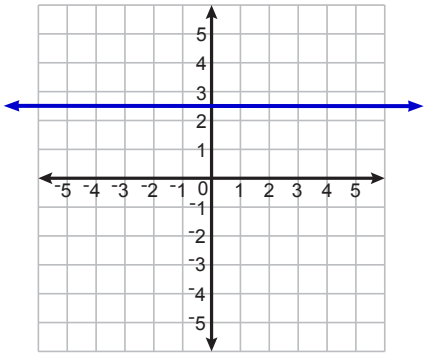
Slope: _____ y-intercept: _____

4 $y = -5x$



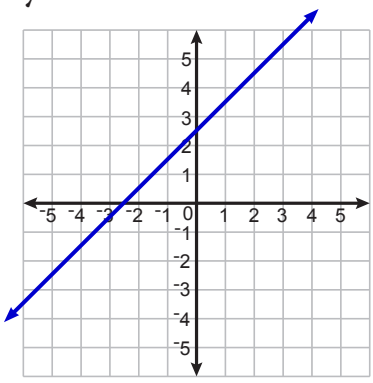
Slope: _____ y-intercept: _____

5 $y = 2.5$



Slope: _____ y-intercept: _____

6 $y = x + 2.5$



Slope: _____ y-intercept: _____

math Antics Worksheets

Name: _____

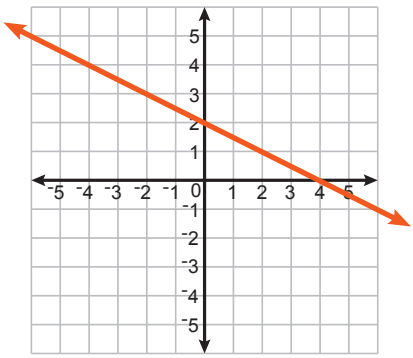
Date: _____

Graphing Linear Functions - Set 2

AB-BLF 3

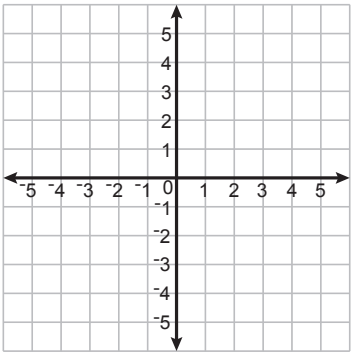
Instructions: Graph each linear functions AND determine its slope and y-intercept.

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



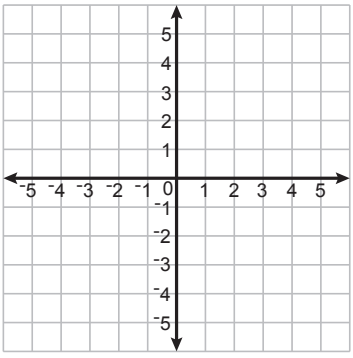
Slope: $-\frac{1}{2}$ y-intercept: 2

2 $y = 3x + 1$



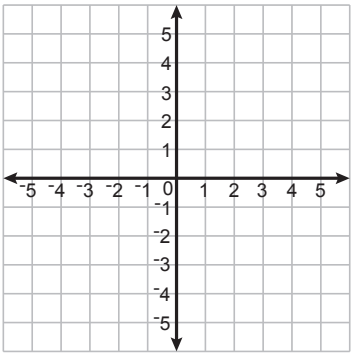
Slope: _____ y-intercept: _____

3 $y = \frac{x}{4}$



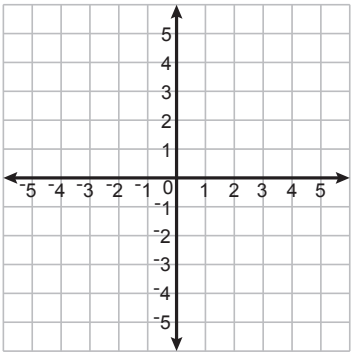
Slope: _____ y-intercept: _____

4 $y = x + \frac{1}{2}$



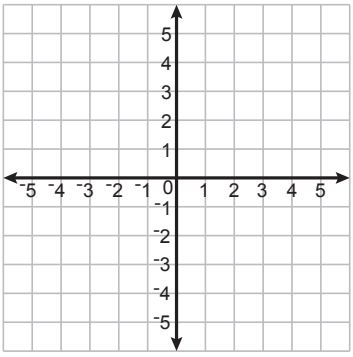
Slope: _____ y-intercept: _____

5 $y = 0.5x - 2$



Slope: _____ y-intercept: _____

6 $y = -6x + 6$



Slope: _____ y-intercept: _____

math Antics Worksheets

Name:

Date:

Slope-Intercept Form

AB-BLF 4

Instructions: Determine the slope and y-intercept of each linear function below. If the equation is not in "Slope-Intercept Form", then rearrange it so it is.

1 $y = 4x + 7$

Slope: 4

y-intercept: 7

2 $y + 2 = 5x$

$-2 \quad -2$

$y = 5x - 2$

Slope: 5

y-intercept: -2

3 $y - 1 = -2x$

Slope:

y-intercept:

4 $y = -x$

Slope:

y-intercept:

5 $y = 7 - 3x$

Slope:

y-intercept:

6 $\frac{y}{2} = x$

Slope:

y-intercept:

7 $5 + y = 1 + 2x$

Slope:

y-intercept:

8 $\frac{y}{3} = \frac{x}{6}$

Slope:

y-intercept:

9 $\frac{y}{2} = x + 1$

Slope:

y-intercept:

10 $y + x = 3 + x$

Slope:

y-intercept:

math Antics Worksheets

Name: _____

Date: _____

Converting to Slope-Intercept Form

AB-BLF 5

Instructions: Convert each linear function into "Slope-Intercept Form" (y = mx + b).

1 $4x + 2y = 8$

$-4x \quad -4x$

$\frac{2y}{2} = \frac{-4x}{2} + \frac{8}{2}$

$y = -2x + 4$

2 $\frac{y}{2} - x = 4x - 6$

$+x \quad +x$

$(2)\frac{y}{2} = (5x - 6)(2)$

$y = 10x - 12$

3 $3y = 3 - 6x$

4 $-2y = 6 - 1x$

5 $\frac{y}{2} - 4 = \frac{x}{3}$

6 $y + 3 = \frac{x}{5} - 2y$

7 $2(y - 3) = x + 10$

8 $(y - 3) = 4(x - 1)$