

<p>1.</p> $5x(3x) = 5x(x \cdot 3)$ <p>is an example of which property?</p> <p>(a) Associative property of addition</p> <p>(b) Commutative property of addition</p> <p>(c) Associative property of multiplication</p> <p>(d) Commutative property of multiplication</p>	<p>2. Evaluate</p> $\begin{aligned} & -15 - (-10) \\ & = -15 + 10 \\ & = -5 \end{aligned}$
<p>3. Evaluate</p> $\begin{aligned} & \left(-\frac{2}{7}\right)\left(-\frac{21}{4}\right) \\ & = 3/2 \end{aligned}$	<p>4. Evaluate</p> $\begin{aligned} & \frac{3}{7} - \frac{12}{21} \\ & = 9/21 - 12/21 \\ & = -3/21 \\ & = -1/7 \end{aligned}$

5. For $a = -4$ and $b = -7$, find

$$a^2 - 4b$$

$$= (-4)^2 - 4(-7)$$
$$= 16 + 28$$

$$= 44$$

6. For $a = -5$ and $b = 6$, find

$$|3a - b|$$

$$= |3(-5) - 6|$$

$$= |-15 - 6|$$

$$= |-21|$$

$$= 21$$

7. Simplify

$$7(x + 2) + 3(x - 2)$$

$$= 7x + 14 + 3x + -6$$

$$= 7x + 3x + 14 + -6$$

$$= 10x + 8$$

$$= 10x + 8$$

8. Simplify

$$5m + 8 - (2m - 4)$$

$$= 5m + 8 + -1(2m + -4)$$

$$= 5m + 8 + -2m + 4$$

$$= 5m + -2m + 8 + 4$$

$$= 3m + 12$$

9. Solve

$$5x = \frac{1}{4}$$

$$(1/5) \cdot 5x = (1/4) \cdot (1/5)$$
$$1 \cdot x = 1/20$$

$$x = 1/20$$

10. Solve

$$3x + 2 = 20$$

$$3x + 2 - 2 = 20 - 2$$

$$3x = 18$$

$$(3x)/3 = 18/3$$

$$x = 6$$

11. Solve

$$6(2x - 5) = 3x + 6$$

$$12x - 30 = 3x + 6$$

$$12x - 30 - 3x = 3x + 6 - 3x$$

$$9x - 30 = 6$$

$$9x - 30 + 30 = 6 + 30$$

$$9x = 36$$

$$(9x)/9 = 36/9$$

$$x = 4$$

12. Solve

$$5x - \frac{1}{3} = \frac{5}{6}$$

$$6(5x - 1/3) = 6 \cdot (5/6)$$

$$30x - 2 = 5$$

$$30x - 2 + 2 = 5 + 2$$

$$30x = 7$$

$$(30x)/30 = 7/30$$

$$x = 7/30$$

13. Five less than twice a number is equal to the number. What is the number?

Let $x =$ the number

$$2x - 5 = x$$

$$2x - 5 + 5 = x + 5$$

$$2x = x + 5$$

$$2x - x = x + 5 - x$$

$$x = 5$$

The number is 5.

14. Find three consecutive numbers whose sum is 105.

Let $x =$ the 1st number

$x + 1 =$ the 2nd number

$x + 2 =$ the 3rd number

$$x + x + 1 + x + 2 = 105$$

$$3x + 3 = 105$$

$$3x + 3 - 3 = 105 - 3$$

$$3x = 102$$

$$(3x)/3 = 102/3$$

$$x = 34$$

$$x + 1 = 35$$

$$x + 2 = 36$$

The three numbers are 34, 35, and 36.

15. Solve

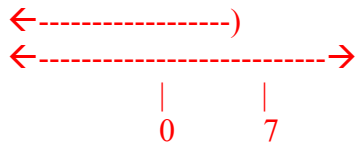
$$3x + 2 < 23$$

$$3x + 2 - 2 < 23 - 2$$

$$3x < 21$$

$$(3x)/3 < 21/3$$

$$x < 7$$



$$(-\infty, 7)$$

16. Solve

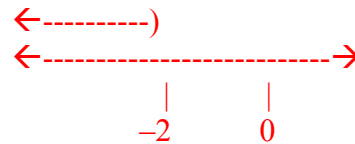
$$7 - 7x > 21$$

$$7 - 7x - 7 > 21 - 7$$

$$-7x > 14$$

$$(-7x)/(-7) < 14/(-7)$$

$$x < -2$$



$$(-\infty, -2)$$

17. Determine the slope of the line that passes through the points

$$(-3, 2) \text{ and } (-5, 8)$$

$$\begin{aligned} m &= (y_2 - y_1)/(x_2 - x_1) \\ &= (8 - 2)/(-5 - (-3)) \\ &= 6/(-5 + 3) \\ &= 6/(-2) \\ &= -3 \end{aligned}$$

18. Determine the slope of the line with the equation

$$x + 2y = 4$$

$$\begin{aligned} -x + x + 2y &= -x + 4 \\ 2y &= -x + 4 \\ (2y)/2 &= (-x + 4)/2 \\ y &= (-x)/2 + 4/2 \\ y &= (-1 \cdot x)/2 + 2 \\ y &= (-1/2) \cdot x + 2 \end{aligned}$$

$$m = (-1/2)$$

19. Determine the slope of a line perpendicular to

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

$$m = -2/5$$

$$m_{\perp} = 5/2$$

20. Find the x -intercept and y -intercept of the line with the equation

$$5x + 4y = 40.$$

	x	y
x -intercept	8	0
y -intercept	0	10

$$\begin{aligned} x\text{-intercept: } &(8, 0) \\ y\text{-intercept: } &(0, 10) \end{aligned}$$

21. Write an equation in slope-intercept form of the line that has slope 6 and passes through the point

$$(5, -3)$$

$$y - y_1 = m(x - x_1)$$

$$y - (-3) = 6(x - 5)$$

$$y + 3 = 6x - 30$$

$$y + 3 - 3 = 6x - 30 - 3$$

$$y = 6x - 33$$

22. Write an equation in slope-intercept form of the line that passes through the points

$$(6, -1) \text{ and } (5, 2)$$

$$m = (2 - (-1))/(5 - 6)$$

$$m = (2 + 1)/(-1)$$

$$m = 3/(-1)$$

$$m = -3$$

$$y - y_1 = m(x - x_1)$$

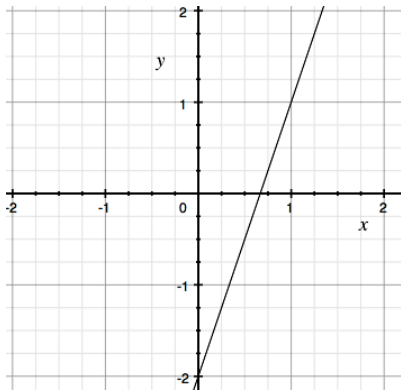
$$y - 2 = -3(x - 5)$$

$$y - 2 = -3x + 15$$

$$y - 2 + 2 = -3x + 15 + 2$$

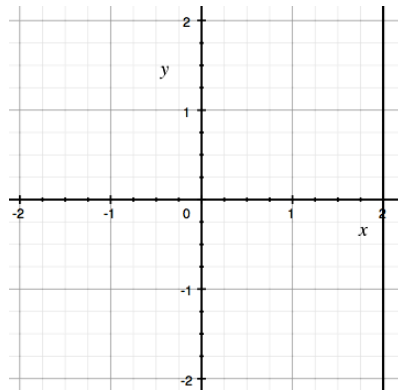
$$y = -3x + 17$$

23. Determine the equation of the line graphed.



$$y = 3x - 2$$

24. Determine the equation of the line graphed.



$$x = 2$$

25. Simplify

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

$$= 2^5 \cdot (x^5)^5 \cdot (y^3)^5$$

$$= 32 x^{25} y^{15}$$

26. Simplify.

$$\frac{x^3}{x^{-8}}$$

$$= x^{3-(-8)}$$

$$= x^{3+8}$$

$$= x^{11}$$

27. Simplify.

$$\left(\frac{a^4}{5b^2}\right)^{-2}$$

$$= \frac{(5b^2/a^4)^2}{(5b^2)^2/(a^4)^2}$$

$$= (25b^4)/a^8$$

28. Simplify.

$$(2x^2y^{-2})(7x^{-5}y^5)$$

$$= 2 \cdot 7 \cdot x^2 \cdot x^{-5} \cdot y^{-2} \cdot y^5$$

$$= 14 \cdot x^{2+(-5)} \cdot y^{-2+5}$$

$$= 14 \cdot x^{-3} \cdot y^3$$

$$= 14 \cdot (1/x^3) \cdot y^3$$

$$= (14y^3)/x^3$$

29. Write 8.371×10^5 in standard notation.

$= 837,100$

30. Write each number in scientific notation, then multiply and simplify, leaving your answer in scientific notation.

$0.0001 \times 25,000$

$= 1.0 \times 10^{-4} \times 2.5 \times 10^4$

$= 1.0 \times 2.5 \times 10^{-4} \times 10^4$

$= 2.5 \times 10^0$

31. Multiply and simplify.

$(5a - b)(4a + 2b)$

F O I L
 $= 5a \cdot 4a + 5a \cdot 2b + -b \cdot 4a + -b \cdot 2b$

$= 20a^2 + 10ab + -4ab + -2b^2$

$= 20a^2 + 6ab - 2b^2$

32. Multiply and simplify.

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

$= x^3 + 6x^2 - 25$

	x^2	x	-5
x	x^3	x^2	$-5x$
5	$5x^2$	$5x$	-25

<p>33. Write the prime factorization of</p> <p style="text-align: center;">90</p> <p>$= 2 \cdot 3^2 \cdot 5$</p>	<p>34. Find the GCF of</p> <p style="text-align: center;">$10y^5$ and $25y$</p> <p>$\text{GCF} = 5y$</p>
<p>35. Factor completely.</p> <p style="text-align: center;">$12x^3 - 3x^4$</p> <p>$= 3x^3(4 - x)$</p>	<p>36. Factor.</p> <p style="text-align: center;">$x^2 - x - 20$</p> <p>$= (x + 4)(x - 5)$</p>

37. Factor.

$$2x - 2y + ax - ay$$

$$= (2 + a)(x - y)$$

	x	-y
2	2x	-2y
a	ax	-ay

38. Factor.

$$10x^2 - 13x - 3$$

$$= 10x^2 + 2x + -15x - 3$$

$$= (2x - 3)(5x + 1)$$

	5x	1
2x	10x ²	2x
-3	-15x	-3

39. Solve

$$(x + 4)(x - 10) = 0$$

$$\begin{array}{l} x + 4 = 0 \quad \text{or} \quad x - 10 = 0 \\ x + 4 - 4 = 0 - 4 \quad x - 10 + 10 = 0 + 10 \\ x = -4 \quad \quad \quad x = 10 \end{array}$$

$$\{-4, 10\}$$

40. Solve

$$x^2 + 7x - 8 = 0$$

$$\begin{array}{l} (x + 8)(x - 1) = 0 \\ x + 8 = 0 \quad \text{or} \quad x - 1 = 0 \\ x + 8 - 8 = 0 - 8 \quad x - 1 + 1 = 0 + 1 \\ x = -8 \quad \quad \quad x = 1 \end{array}$$

$$\{-8, 1\}$$