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3. What is the solution of the system of equations?

$$y = 2x + 5$$

$$y = x - 6$$

$$\begin{array}{r} 2x + 5 = x - 6 \\ -x \quad -x \\ \hline x + 5 = -6 \\ -5 \quad -5 \\ \hline x = -11 \end{array}$$

$$y = -11 - 6$$

$$= -17$$

$$(-11, -17)$$

Solve the system of equations using substitution.

- 4.
- $3x + 2y = 7$
- 
- $y = -3x + 11$

$$3x + 2(-3x + 11) = 7$$

$$x = 5$$

$$3x - 6x + 22 = 7$$

$$\begin{array}{r} -3x + 22 = 7 \\ -22 \quad -22 \\ \hline -3x = -15 \\ -3 \quad -3 \\ \hline x = 5 \end{array}$$

$$y = -3(5) + 11$$

$$y = -15 + 11$$

$$y = -4 \quad (5, -4)$$

Solve the system using elimination.

- 5.
- $2x - 2y = -8$
- 
- $x + 2y = -1$

$$\begin{array}{r} 3x = -9 \\ \hline x = -3 \end{array}$$

$$x = -3$$

$$\begin{array}{r} -3 + 2y = -1 \\ +3 \quad +3 \\ \hline 2y = 2 \\ \hline y = 1 \end{array}$$

$$y = 1$$

$$(-3, 1)$$

6. By what number should you multiply the first equation to solve using elimination?

$$-2x - 2y = 0$$

$$-6x + 5y = 33$$

a. -6

b. 6

c. 3

d. -2

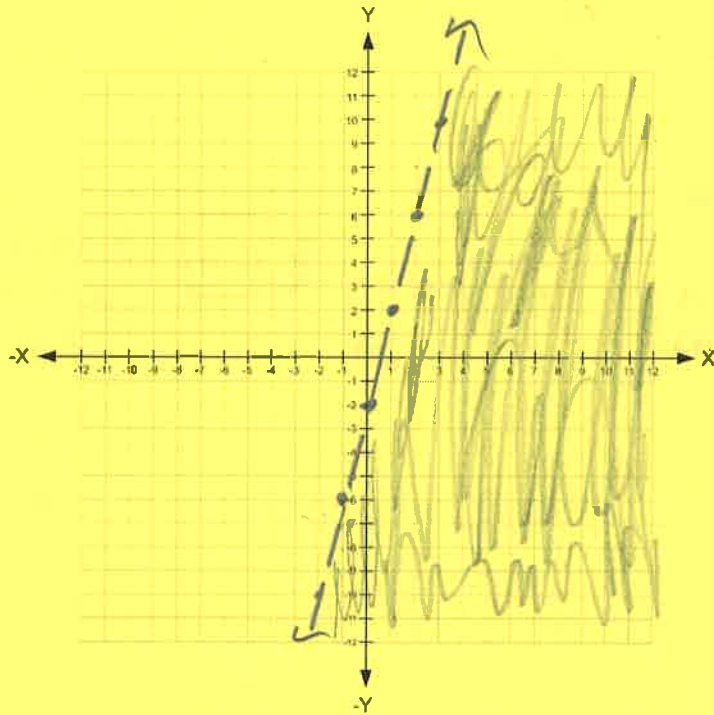
-3

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Graph the inequality.

7.  $y < 4x - 2$



$$m = \frac{4}{1}$$
$$y\text{-int} = (0, -2)$$

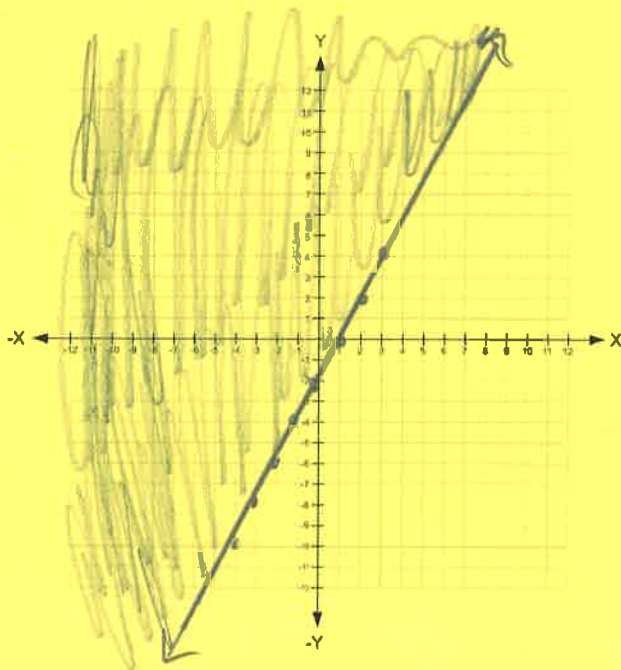
Test point (0,0)

$$0 < 4(0) - 2$$

$$0 < 0 - 2$$

$$0 < -2 \text{ FALSE}$$

8.  $y \geq 2x - 2$



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

$$y\text{-int} = (0, -2)$$

Test Point (0,0)

$$0 \geq 2(0) - 2$$

$$0 \geq 0 - 2$$

$$0 \geq -2 \text{ TRUE}$$

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9. Write the following inequality in slope-intercept form.

$$-6x - 2y \geq -46$$

$$\begin{array}{r} +6x \quad +6x \\ \hline -2y \geq \frac{6x-46}{-2} \end{array}$$

$$y \leq -3x + 23$$

10. Find a solution of the linear inequality.

$$y \geq 4x - 5$$

a.  $(3, 4)$

b.  $(2, 1)$

c.  $(3, 0)$

d.  $(1, 1)$

$$\begin{array}{l} 4 \geq 4(3) - 5 \\ 4 \geq 12 - 5 \end{array} \quad \text{NO}$$

$$\begin{array}{l} 1 \geq 4(2) - 5 \\ 1 \geq 8 - 5 \end{array} \quad \text{NO}$$

$$\begin{array}{l} 0 \geq 4(3) - 5 \\ 0 \geq 12 - 5 \end{array} \quad \text{NO}$$

$$\begin{array}{l} 1 \geq 4(1) - 5 \\ 1 \geq 4 - 5 \\ 1 \geq -1 \end{array} \quad \text{YES}$$

Simplify the expression.

11.  $(-2.8)^0 = 1$

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

13.  $(9)^{-2} = \frac{1}{9^2} = \frac{1}{81}$

14.  $2g^3h^{-5} = \frac{2g^3}{h^5}$

15.  $\frac{11}{a^{-9}b^7} = \frac{11a^9}{b^7}$

16.  $5^{-1} \cdot 6^0 = \frac{1}{5} \cdot 1 = \frac{1}{5}$

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$$17. \quad 6^7 \cdot 6^1 \cdot 6^5 = 6^{13}$$

$$18. \quad g^{-3} \cdot 5g^8 = 5g^5$$

$$19. \quad 7x^{-8} \cdot 6x^3 = 42x^{-5} = \frac{42}{x^5}$$

$$20. \quad -4x^3 \cdot 2y^{-2} \cdot 5y^5 \cdot x^{-8} = -40x^{-5}y^3 = \frac{-40y^3}{x^5}$$

$$21. \quad (y^6)^2 = y^{12}$$

$$22. \quad (x^{-2})^5 = x^{-10} = \frac{1}{x^{10}}$$

$$23. \quad (x^9)^0 (x^7)^2 = x^0 \cdot x^{14} = 1 \cdot x^{14} = x^{14}$$

$$24. \quad (-h^4)^5 = -h^{20}$$

$$25. \quad (9h^5)^3 = 891h^{15}$$

$$26. \quad (3xy^2)^2(xy)^6 = 3^2 x^2 y^6 x^6 y^6 = 9x^8 y^{12}$$

$$27. \quad (-5a^2b^3)^3(a^6b^6)^3 = -5^3 a^6 b^9 a^{18} b^{18} = -125a^{24}b^{27}$$

$$28. \quad \frac{9^8}{9^6} = 9^2 = 81$$

$$29. \quad \frac{a^{18}}{a^{10}} = a^8$$

$$30. \quad \frac{x^3}{x^{10}} = x^{-7} = \frac{1}{x^7}$$

$$31. \quad \frac{11^3}{11^5} = 11^{-2} = \frac{1}{11^2}$$

$$32. \quad \frac{c^{-9}d^4}{c^{-19}d^{15}} = \frac{c^{19}d^4}{c^9d^{15}} = c^{10}d^{-11} = \frac{c^{10}}{d^{11}}$$

$$33. \quad \left(\frac{3t}{2}\right)^3 = \frac{3^3 t^3}{2^3} = \frac{27t^3}{8}$$

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34.  $\left(\frac{m^{-1}m^5}{m^{-2}}\right)^{-3} = (m^4m^2)^{-3} = (m^6)^{-3} = m^{-18} = \frac{1}{m^{18}}$

Evaluate the function rule for the given value.

35.  $f(x) = 3^x$  for  $x=2$        $F(2) = 3^2 = 9$

36. Write the polynomial in standard form. Then name the polynomial based on its degree and number of terms.

$2 - 11x^2 - 8x + 6x^2$        $-5x^2 - 8x + 2$   
Quadratic Trinomial

Find the degree of the monomial.

37.  $6x^4y^3$       7<sup>th</sup> degree

38. Match the expression with its name.

$10x^4 - 6x + 10$

- a. cubic binomial
- b. not a polynomial
- c.  fourth-degree trinomial
- d. quadratic monomial

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**Simplify the difference.**

39.  $(4w^2 - 5w - 7) - (2w^2 + 2w - 6)$

$$2w^2 - 7w - 1$$

40. Simplify the sum.

$$(6u^3 + 4u^2 + 4) + (8u^3 - 7u + 8)$$

$$14u^3 + 4u^2 - 7u + 12$$

**Simplify the product.**

41.  $3p^4(4p^4 + 7p^3 + 4p + 1)$

$$12p^8 + 21p^7 + 12p^5 + 3p^4$$

**Factor the polynomial.**

42.  $2x^3 + 4x^2 + 8x$

$$2x(x^2 + 2x + 4)$$

43. Find the GCF of the terms of the polynomial.

$$21x^4 + 33x^5$$

$$3x^4$$



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**Simplify the product using FOIL.**

44.  $(3x-7)(3x-5)$   $9x^2 - 15x - 21x + 35$   
 $9x^2 - 36x + 35$

**Find the square.**

45.  $(7m+7)^2$   $(7m+7)(7m+7)$   
 $49m^2 + 49m + 49m + 49$   
 $49m^2 + 98m + 49$

**Find the product.**

46.  $(j+7)(j-7)$   $j^2 - 49$

**Factor the expression.**

47.  $w^2 + 18w + 77$   $(w+11)(w+7)$

48.  $12d^2 + 4d - 1$   
 $a \cdot c = 12 \cdot -1 = -12$

~~$\begin{array}{r} 6 \quad -12 \\ \times \quad -2 \\ \hline 12 \end{array}$~~

|         |      |      |
|---------|------|------|
| $12d^2$ | $6d$ | $6d$ |
| $-2d$   | $-1$ | $-2$ |
| $2d$    | $1$  |      |

$(6d-2)(2d+1)$

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49.  $r^2 - 49$

$(r+7)(r-7)$

50.  $3x^3 + 3x^2 + x + 1$

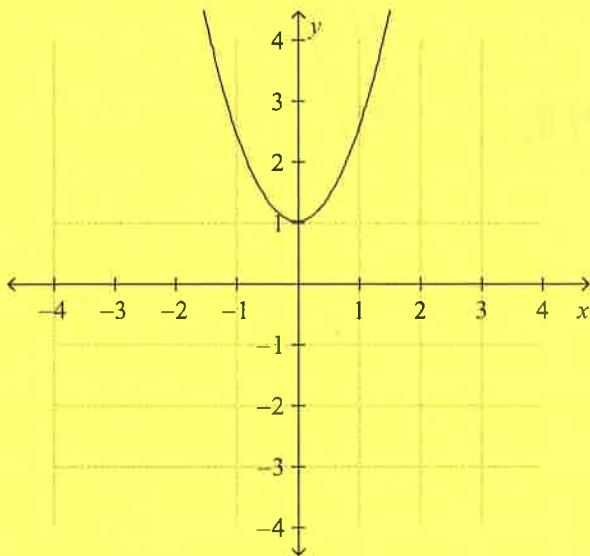
|        |        |
|--------|--------|
| $3x^3$ | $3x^2$ |
| $x$    | $1$    |

$x$        $1$

$3x^2$

$(3x^2+1)(x+1)$

51. Identify the vertex of the graph. Tell whether it is a minimum or maximum.



$(0, 1)$

minimum

52. A parabola \_\_\_\_\_ has an axis of symmetry.

a. always

b. sometimes

c. never

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Solve the equation using the zero-product property.

53.  $(4x + 8)(4x - 1) = 0$

$$\begin{array}{l} 4x + 8 = 0 \\ \quad -8 \quad -8 \\ \hline 4x = -8 \\ \quad \quad \quad 4 \\ \hline x = -2 \end{array} \quad \text{OR} \quad \begin{array}{l} 4x - 1 = 0 \\ \quad +1 \quad +1 \\ \hline 4x = 1 \\ \quad \quad \quad 4 \\ \hline x = \frac{1}{4} \end{array}$$

Solve the equation by factoring.

54.  $z^2 + 7z - 8 = 0$

$(z + 8)(z - 1) = 0$

$$\begin{array}{l} z + 8 = 0 \\ \quad -8 \quad -8 \\ \hline z = -8 \end{array} \quad \text{OR} \quad \begin{array}{l} z - 1 = 0 \\ \quad +1 \quad +1 \\ \hline z = 1 \end{array}$$

Simplify the radical expression.

55.  $2\sqrt{98} = 2\sqrt{49 \cdot 2}$

$$= 2 \cdot 7\sqrt{2}$$

$$= \boxed{14\sqrt{2}}$$

56.  $\sqrt{27} = \sqrt{9 \cdot 3}$

$$= \boxed{3\sqrt{3}}$$

57.  $-3\sqrt{72c^2}$

$$= -3\sqrt{36 \cdot 2 \cdot c^2}$$

$$= -3 \cdot 6 \cdot c\sqrt{2}$$

$$= \boxed{-18c\sqrt{2}}$$

Simplify the radical expression by rationalizing the denominator.

58.  $\frac{4}{\sqrt{11}} \cdot \frac{\sqrt{11}}{\sqrt{11}} = \frac{4\sqrt{11}}{11}$

