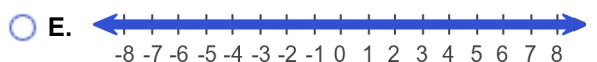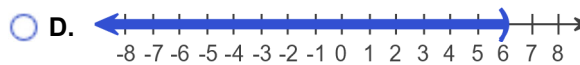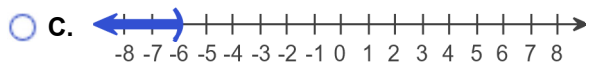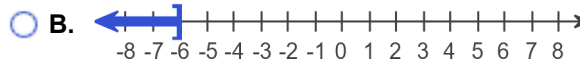| **Student:** _____	**Instructor:** Alfredo Alvarez	**Assignment:** Math 0320 WARM UP
Date: _____	**Course:** Math 0410 / 0320 Alvarez	37ez101

1. Solve the inequality. Graph the solution set and write it in interval notation.

$$4x < -24$$

Choose the correct graph below.

- A.
- B.
- C.
- D.
- E.
- F.
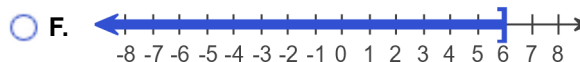
The solution to the inequality $4x < -24$ is [_____].
(Type your answer in interval notation.)

Answers

C.
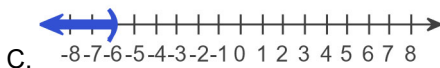
$$(-\infty, -6)$$

2. Solve the inequality. Graph the solution set and write it in interval notation.

$$-8x \le 24$$

Choose the correct graph below.

- A.
- B.
- C.
- D.
- E.
- F.
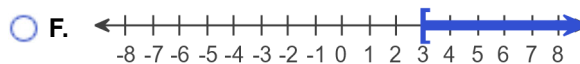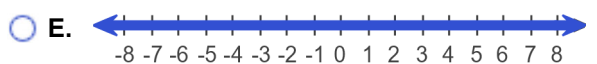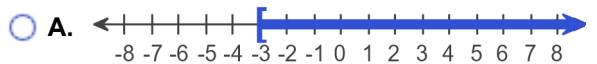
The solution to the inequality $-8x \le 24$ is [_____].
(Type your answer in interval notation.)

Answers

A.
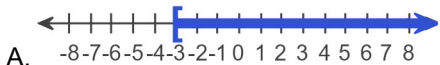
$$[-3, \infty)$$

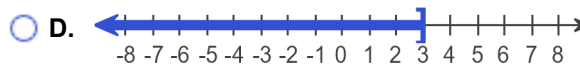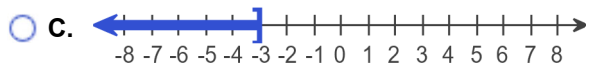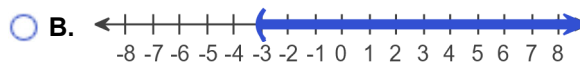3. Find $h(-1)$, $h(0)$, and $h(1)$ for the following function.

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

    $h(-1) = $ [_____] (Simplify your answer.)

    $h(0) = $ [_____] (Simplify your answer.)

    $h(1) = $ [_____] (Simplify your answer.)

    Answers 3

    $\qquad$ -2

    $\qquad$ 3

4. Determine whether each ordered pair is a solution of the system of linear equations.

    $\begin{cases} x + y = 7 \\ 2x + 3y = 15 \end{cases}$

    a. (6,1)
    b. (2,5)

    a. Is (6,1) a solution?

    ○ Yes
    ○ No

    b. Is (2,5) a solution?

    ○ No
    ○ Yes

    Answers Yes

    $\qquad$ No

5. Solve the system of equations by the addition method.

    $\begin{cases} 3x + 2y = 17 \\ 4x - 2y = 18 \end{cases}$

    Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

    ○ **A.** The solution is _____ . (Simplify your answer. Type an ordered pair.)
    ○ **B.** There are infinitely many solutions; $\{(x,y) | 3x + 2y = 17\}$ or $\{(x,y) | 4x - 2y = 18\}$.
    ○ **C.** There is no solution; {} or ∅.

    Answer: A. The solution is [**(5,1)**] . (Simplify your answer. Type an ordered pair.)

6.   Solve the system of equations by the addition method.

$$\begin{cases} x + 4y = 6 \\ 6x + 3y = -6 \end{cases}$$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

   ○ **A.**   The solution is _____ . (Simplify your answer. Type an ordered pair.)

   ○ **B.**   There are infinitely many solutions; $\{(x,y)\,|\,x + 4y = 6\}$ or $\{(x,y)\,|\,6x + 3y = -6\}$.

   ○ **C.**   There is no solution; $\{\}$ or $\varnothing$.

Answer: A. The solution is   **(−2,2)**   . (Simplify your answer. Type an ordered pair.)

---

7.   If $Q(x) = 5x^2 - 1$, find $Q(-10)$.

$Q(-10) = $ ▭

Answer: 499

---

8.   If $P(x) = x^2 + x + 5$, find $P(0)$.

$P(0) = $ ▭

Answer: 5

---

9.   Subtract the given expressions.

$$\left(5x^2 + 2\right) - \left(10x^2 - 5\right)$$

$\left(5x^2 + 2\right) - \left(10x^2 - 5\right) = $ ▭

Answer: $-5x^2 + 7$

---

10.   Subtract the given expressions.

$$4x - (5x - 2)$$

$4x - (5x - 2) = $ ▭

Answer: $-x + 2$

11. Subtract.

$$\left(9y^2 + 8y - 9\right) - (-4y + 4)$$

$\left(9y^2 + 8y - 9\right) - (-4y + 4) = $ [_____] (Simplify your answer.)

Answer: $9y^2 + 12y - 13$

12. Add.

$$\left(-6y^2 - 8y\right) + \left(8y^2 + y - 2\right)$$

$\left(-6y^2 - 8y\right) + \left(8y^2 + y - 2\right) = $ [_____] (Do not factor.)

Answer: $2y^2 - 7y - 2$

13. Perform the indicated operation.

$$(5x + 9) - \left(-9x^2 - 6x + 9\right)$$

$(5x + 9) - \left(-9x^2 - 6x + 9\right) = $ [_____] (Simplify your answer.)

Answer: $9x^2 + 11x$

14. Multiply.

$$6x(5x + 7)$$

$6x(5x + 7) = $ [_____] (Simplify your answer.)

Answer: $30x^2 + 42x$

15. Multiply.

$$4x\left(3x^2 - 3x + 5\right)$$

$4x\left(3x^2 - 3x + 5\right) = $ [_____] (Simplify your answer.)

Answer: $12x^3 - 12x^2 + 20x$

16. Multiply.

$$(a + 3)(a - 9)$$

$(a + 3)(a - 9) = \boxed{}$

Answer: $a^2 - 6a - 27$

17. Find the following product.

$$(9y + 8)^2$$

$(9y + 8)^2 = \boxed{}$

Answer: $81y^2 + 144y + 64$

18. Multiply.

$$(2x + 4)(4x + 7)$$

$(2x + 4)(4x + 7) = \boxed{}$ (Simplify your answer.)

Answer: $8x^2 + 30x + 28$

19. Multiply.

$$(x - 6)\left(x^2 - 2x + 4\right)$$

$(x - 6)\left(x^2 - 2x + 4\right) = \boxed{}$

Answer: $x^3 - 8x^2 + 16x - 24$

20. Multiply.

$$(x + 7)\left(x^3 - 3x + 6\right)$$

$(x + 7)\left(x^3 - 3x + 6\right) = \boxed{}$

Answer: $x^4 + 7x^3 - 3x^2 - 15x + 42$

21. Find the following product.

$$(5a - 5)\left(3a^2 + 7a + 3\right)$$

$(5a - 5)\left(3a^2 + 7a + 3\right) = \boxed{}$

Answer: $15a^3 + 20a^2 - 20a - 15$

22. Multiply vertically.

$$(6x - 13)(4x + 1)$$

$(6x - 13)(4x + 1) = \boxed{}$

Answer: $24x^2 - 46x - 13$

23. Multiply vertically.

$$(5x + 1)(4x^2 + 3x - 1)$$

$(5x + 1)(4x^2 + 3x - 1) = \boxed{}$ (Simplify your answer.)

Answer: $20x^3 + 19x^2 - 2x - 1$

24. Multiply.

$$-2x\left(x^2 + 5x - 3\right)$$

$-2x\left(x^2 + 5x - 3\right) = \boxed{}$ (Simplify your answer.)

Answer: $-2x^3 - 10x^2 + 6x$

25. Find the following product.

$$(8x + 7)^2$$

$(8x + 7)^2 = \boxed{}$

Answer: $64x^2 + 112x + 49$

26. Multiply.

$(4x - 4)(4x - 6)$

$(4x - 4)(4x - 6) =$ ▭   (Simplify your answer.)

Answer: $16x^2 - 40x + 24$

---

27. Find the product using the FOIL method.

$(8x + 1)(5x - 6)$

$(8x + 1)(5x - 6) =$ ▭

Answer: $40x^2 - 43x - 6$

---

28. Multiply.

$(x + 1)^2$

$(x + 1)^2 =$ ▭   (Simplify your answer.)

Answer: $x^2 + 2x + 1$

---

29. Multiply.

$(2x - 3)^2$

$(2x - 3)^2 =$ ▭   (Simplify your answer.)

Answer: $4x^2 - 12x + 9$

---

30. Multiply.

$(5x - 7)^2$

$(5x - 7)^2 =$ ▭   (Simplify your answer.)

Answer: $25x^2 - 70x + 49$

31.　Find the product.

　　　$(8x + 6)^2$

　　$(8x + 6)^2 = $ [　　　　　　]

　　　Answer: $64x^2 + 96x + 36$

32.　Divide using synthetic division.

　　　$\left(7x^2 + 13x + 9\right) \div (x + 1)$

　　$\left(7x^2 + 13x + 9\right) \div (x + 1) = $ [　　　　　　]

　　　Answer: $7x + 6 + \dfrac{3}{x + 1}$

33.　Factor out the greatest common factor from the polynomial.

　　　$8x + 24$

　　$8x + 24 = $ [　　　　　　] (Type your answer in factored form.)

　　　Answer: $8(x + 3)$

34.　Factor the following polynomial.

　　　$-20x^3y^3 - 8x^5y^2$

　　$-20x^3y^3 - 8x^5y^2 = $ [　　　　　　] (Factor completely.)

　　　Answer: $4x^3y^2\left(-5y - 2x^2\right)$

35.
　　Complete the factoring.

　　　$x^2 + 7x + 12$

　　　Answer: $x + 4$

　　　　　　　　　　$x^2 + 7x + 12 = (x + 3)($[　　　　　　]$)$

36.
　　Complete the factoring.

　　$x^2 - 12x + 35$

　　　Answer: $x - 5$

　　　　　　　　　　$x^2 - 12x + 35 = (x - 7)($[　　　　　　]$)$

37. Factor the trinomial completely.

   $x^2 + 9x + 14$

   Select the correct choice below and, if necessary, fill in the answer box within your choice.

   ○ **A.** $x^2 + 9x + 14 =$ _____
   ○ **B.** The polynomial is prime.

   Answer: A. $x^2 + 9x + 14 =$ **(x + 7)(x + 2)**

---

38. Factor the trinomial completely.

   $x^2 - 3x + 2$

   Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

   ○ **A.** $x^2 - 3x + 2 =$ _____ (Type your answer in factored form.)
   ○ **B.** The polynomial is prime.

   Answer: A. $x^2 - 3x + 2 =$ **(x − 1)(x − 2)** (Type your answer in factored form.)

---

39. Factor the trinomial completely. If the polynomial cannot be factored, say it is prime.

   $x^2 - 6x + 9$

   Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

   ○ **A.** $x^2 - 6x + 9 =$ _____ (Type your answer in factored form.)
   ○ **B.** The polynomial is prime.

   Answer: A. $x^2 - 6x + 9 =$ **(x − 3)(x − 3)** (Type your answer in factored form.)

---

40. Factor the trinomial completely.

   $x^2 - x - 12$

   Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

   ○ **A.** $x^2 - x - 12 =$ _____ (Type your answer in factored form.)
   ○ **B.** The polynomial is prime.

   Answer: A. $x^2 - x - 12 =$ **(x + 3)(x − 4)** (Type your answer in factored form.)

---

41. Factor the trinomial completely.

    $x^2 + 4x - 5$

    Select the correct choice below and, if necessary, fill in the answer box within your choice.

      ○ **A.** $x^2 + 4x - 5 =$ _____

      ○ **B.** The polynomial is prime.

    Answer: A. $x^2 + 4x - 5 =$ $\boxed{\textbf{(x + 5)(x − 1)}}$

---

42. Factor the trinomial completely.

    $x^2 + 5x + 3$

    Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

      ○ **A.** $x^2 + 5x + 3 =$ _____ (Type your answer in factored form.)

      ○ **B.** The polynomial is prime.

    Answer: B. The polynomial is prime.

---

43. Factor the trinomial completely.

    $x^2 + 9xy + 8y^2$

    Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

      ○ **A.** $x^2 + 9xy + 8y^2 =$ _____

      ○ **B.** The trinomial is prime.

    Answer: A. $x^2 + 9xy + 8y^2 =$ $\boxed{\textbf{(x + y)(x + 8y)}}$

---

44. Factor the trinomial completely.

    $a^4 - 3a^2 - 10$

    Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

      ○ **A.** $a^4 - 3a^2 - 10 =$ _____ (Factor completely.)

      ○ **B.** The polynomial is prime.

    Answer: A. $a^4 - 3a^2 - 10 =$ $\boxed{\left(\textbf{a}^2 + \textbf{2}\right)\left(\textbf{a}^2 - \textbf{5}\right)}$ (Factor completely.)

---

45. Factor the trinomial completely.

$$13 + 14m + m^2$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

   ○ **A.** $13 + 14m + m^2 =$ _____ (Type your answer in factored form.)

   ○ **B.** The polynomial is prime.

Answer: A. $13 + 14m + m^2 = \boxed{(m + 13)(m + 1)}$ (Type your answer in factored form.)

---

46. Factor the trinomial completely.

$$10t - 24 + t^2$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

   ○ **A.** $10t - 24 + t^2 =$ _____ (Factor completely.)

   ○ **B.** The polynomial is prime.

Answer: A. $10t - 24 + t^2 = \boxed{(t - 2)(t + 12)}$ (Factor completely.)

---

47. Factor the trinomial completely.

$$a^2 - 12ab + 35b^2$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

   ○ **A.** $a^2 - 12ab + 35b^2 =$ _____ (Factor completely.)

   ○ **B.** The polynomial is prime.

Answer: A. $a^2 - 12ab + 35b^2 = \boxed{(a - 5b)(a - 7b)}$ (Factor completely.)

---

48. Factor the trinomial completely.

$$3x^2 + 33x + 84$$

Select the correct choice below and fill in any answer boxes within your choice.

   ○ **A.** $3x^2 + 33x + 84 =$ _____
       (Factor completely.)

   ○ **B.** The polynomial is prime.

Answer: A. $3x^2 + 33x + 84 = \boxed{3(x + 4)(x + 7)}$ (Factor completely.)

---

49. Factor the trinomial completely. If the trinomial contains a greatest common factor (other than 1), factor out the GCF first.

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

    Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

    ○ **A.** $2x^3 - 10x^2 + 8x =$ _____ (Factor completely.)
    ○ **B.** The polynomial is prime.

    Answer: A. $2x^3 - 10x^2 + 8x = \boxed{\textbf{2x(x − 1)(x − 4)}}$ (Factor completely.)

50. Factor the trinomial completely. If the trinomial contains a greatest common factor (other than 1), factor out the GCF first.

    $x^2 - 7xy - 8y^2$

    Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

    ○ **A.** $x^2 - 7xy - 8y^2 =$ _____ (Factor completely.)
    ○ **B.** The polynomial is prime.

    Answer: A. $x^2 - 7xy - 8y^2 = \boxed{\textbf{(x − 8y)(x + y)}}$ (Factor completely.)

51. Factor the trinomial completely.

    $x^2 + 15x + 14$

    Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

    ○ **A.** $x^2 + 15x + 14 =$ _____ (Factor completely.)
    ○ **B.** The polynomial is prime.

    Answer: A. $x^2 + 15x + 14 = \boxed{\textbf{(x + 14)(x + 1)}}$ (Factor completely.)

52. Factor the trinomial completely. If the trinomial contains a greatest common factor (other than 1), factor out the GCF first.

    $x^2 - x - 110$

    Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

    ○ **A.** $x^2 - x - 110 =$ _____ (Factor completely.)
    ○ **B.** The polynomial is prime.

    Answer: A. $x^2 - x - 110 = \boxed{\textbf{(x + 10)(x − 11)}}$ (Factor completely.)

53. Factor the trinomial completely. Don't forget to factor out the GCF first.

$$r^2 - 21r + 54$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ○ **A.** $r^2 - 21r + 54 =$ _____
- ○ **B.** The polynomial is prime.

Answer: A. $r^2 - 21r + 54 =$ **(r − 3)(r − 18)**

---

54. Factor the trinomial completely. If the trinomial contains a greatest common factor (other than 1), factor out the GCF first.

$$x^2 + 11xy - 12y^2$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ○ **A.** $x^2 + 11xy - 12y^2 =$ _____ (Factor completely.)
- ○ **B.** The polynomial is prime.

Answer: A. $x^2 + 11xy - 12y^2 =$ **(x + 12y)(x − y)** (Factor completely.)

---

55. Factor the trinomial completely.

$$6x^2 + 30x - 84$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ○ **A.** $6x^2 + 30x - 84 =$ _____
- ○ **B.** The polynomial is prime.

Answer: A. $6x^2 + 30x - 84 =$ **6(x + 7)(x − 2)**

---

56. Factor the trinomial completely.

$$3x^2 - 39x + 108$$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- ○ **A.** $3x^2 - 39x + 108 =$ _____
- ○ **B.** The polynomial is prime.

Answer: A. $3x^2 - 39x + 108 =$ **3(x − 9)(x − 4)**

---

57. Factor the trinomial completely. If this trinomial contains a greatest common factor (other than 1), don't forget to factor out the GCF first.

$$x^2 - 21x - 100$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $x^2 - 21x - 100 =$ _____
- **B.** The polynomial is prime.

Answer: A. $x^2 - 21x - 100 =$ **(x + 4)(x − 25)**

---

58. Factor the trinomial completely.

$$t^2 - 8t + 6$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $t^2 - 8t + 6 =$ _____ (Factor completely.)
- **B.** The polynomial is prime.

Answer: B. The polynomial is prime.

---

59. Factor the trinomial completely. If the trinomial contains a greatest common factor (other than 1), factor out the GCF first.

$$x^2 - 9x + 14$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $x^2 - 9x + 14 =$ _____ (Factor completely.)
- **B.** The polynomial is prime.

Answer: A. $x^2 - 9x + 14 =$ **(x − 7)(x − 2)** (Factor completely.)

---

60. Factor the trinomial completely. Do not forget to factor out the GCF first.

$$4x^3 + 40x^2 + 96x$$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- **A.** $4x^3 + 40x^2 + 96x =$ _____ (Type your answer in factored form.)
- **B.** The polynomial is prime.

Answer: A. $4x^3 + 40x^2 + 96x =$ **4x(x + 4)(x + 6)** (Type your answer in factored form.)

---

61. Factor the trinomial completely.

    $5x^2y + 20xy - 65y$

    Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

    ◯ **A.** $5x^2y + 20xy - 65y =$ _____ (Factor completely.)

    ◯ **B.** The polynomial is prime.

    Answer: A. $5x^2y + 20xy - 65y = \boxed{\mathbf{5y\left(x^2 + 4x - 13\right)}}$ (Factor completely.)

---

62. Factor the trinomial completely. If the trinomial contains a greatest common factor (other than 1), factor out the GCF first.

    $x^2 - x - 2$

    Select the correct choice below and fill in any answer box within your choice.

    ◯ **A.** $x^2 - x - 2 =$ _____ (Factor completely.)

    ◯ **B.** $x^2 - x - 2$ is prime.

    Answer: A. $x^2 - x - 2 = \boxed{\mathbf{(x - 2)(x + 1)}}$ (Factor completely.)

---

63. Factor the following binomial completely.

    $144x^2 - 121y^2$

    Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

    ◯ **A.** $144x^2 - 121y^2 =$ _____ (Factor completely.)

    ◯ **B.** The polynomial is prime.

    Answer: A. $144x^2 - 121y^2 = \boxed{\mathbf{(12x + 11y)(12x - 11y)}}$ (Factor completely.)

---

64. Solve the equation.

    $(4x + 5)(8x - 9) = 0$

    x = [　　　　　]

    (Simplify your answer. Type each solution only once. Use a comma to separate answers as needed.)

    Answer: $-\dfrac{5}{4}, \dfrac{9}{8}$

---

65. Solve the equation.

$$x^2 - 10x + 24 = 0$$

x = [＿＿＿＿＿]

(Simplify your answer. Type each solution only once. Use a comma to separate answers as needed.)

Answer: 6,4

66. Solve.

$$x^2 + 3x - 10 = 0$$

x = [＿＿＿＿＿]

(Simplify your answer. Type each solution only once. Use a comma to separate answers as needed.)

Answer: − 5,2

67. Solve the equation.

$$x^2 - 6x = 27$$

x = [＿＿＿＿＿]

(Use a comma to separate answers as needed.)

Answer: 9, − 3

68. Solve.

$$(x - 1)(x + 8) = 5x$$

x = [＿＿＿＿＿]

(Simplify your answer. Type each solution only once. Use a comma to separate answers as needed.)

Answer: − 4,2

69. Solve the equation.

$$x^3 - 12x^2 + 35x = 0$$

x = [＿＿＿＿＿]

(Simplify your answer. Type each solution only once. Use a comma to separate answers as needed.)

Answer: 0,5,7

70. Solve.

$$x^2 - 8 = -2x$$

x = [   ]
(Simplify your answer. Type each solution only once. Use a comma to separate answers as needed.)

  Answer: $-4,2$

---

71. Solve.

$$9x^2 - 19x - 24 = 0$$

x = [   ]
(Simplify your answer. Type each solution only once. Use a comma to separate answers as needed.)

  Answer: $-\dfrac{8}{9},3$

---

72. Solve the equation.

$$(x - 2)(x + 5) = 8$$

x = [   ]
(Simplify your answer. Type each solution only once. Use a comma to separate answers as needed.)

  Answer: $3, -6$

---

73. Solve.

$$x^2 + 12x + 36 = 0$$

x = [   ]
(Simplify your answer. Type each solution only once. Use a comma to separate answers as needed.)

  Answer: -6

---

74. Simplify the expression.

$$\dfrac{-4a + 4b}{a - b}$$

Select the correct choice below and fill in any answer boxes in your choice.

  ○ **A.** $\dfrac{-4a + 4b}{a - b} = $ _____ (Simplify your answer.)

  ○ **B.** The expression cannot be simplified.

  Answer: A. $\dfrac{-4a + 4b}{a - b} = $ [**−4**] (Simplify your answer.)

---

75. Find the product and simplify if possible.

$$\frac{x}{2x - 12} \cdot \frac{x^2 - 6x}{3}$$

$$\frac{x}{2x - 12} \cdot \frac{x^2 - 6x}{3} = \boxed{}$$

(Simplify your answer. Use integers or fractions for any numbers in the expression.)

Answer: $\dfrac{x^2}{6}$

76. Find the quotient and simplify.

$$\frac{x^2 + 5x + 4}{x - 3} \div \frac{x^2 - 5x - 6}{x - 3}$$

$$\frac{x^2 + 5x + 4}{x - 3} \div \frac{x^2 - 5x - 6}{x - 3} = \boxed{}$$ (Type your answer in factored form.)

Answer: $\dfrac{x + 4}{x - 6}$

77. Add. Simplify the result if possible.

$$\frac{8}{6 + y} + \frac{y + 5}{6 + y}$$

$$\frac{8}{6 + y} + \frac{y + 5}{6 + y} = \boxed{}$$ (Simplify your answer.)

Answer: $\dfrac{y + 13}{6 + y}$

78. Solve the equation.

$$\frac{z-8}{3} = \frac{z}{5}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○ **A.** The solution is _____ .
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)

○ **B.** There is no solution.

Answer: A. The solution is | **20** | .
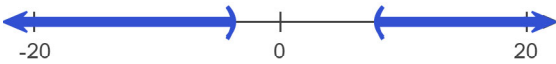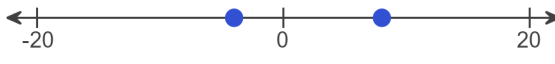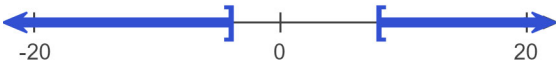(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)

79. Solve the equation.

$$\frac{3}{2y-5} = -1$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○ **A.** $y =$ _____
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)

○ **B.** There is no solution.

Answer: A. $y =$ | **1** | (Type an integer or a simplified fraction. Use a comma to separate answers as needed.)

80.

Graph the linear equation.

$f(x) = -2x + 2$

Use the graphing tool to graph the linear equation.
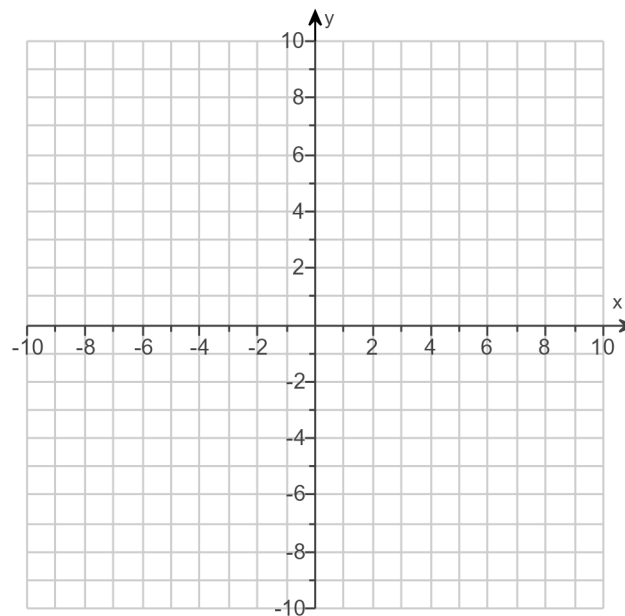
Answer:
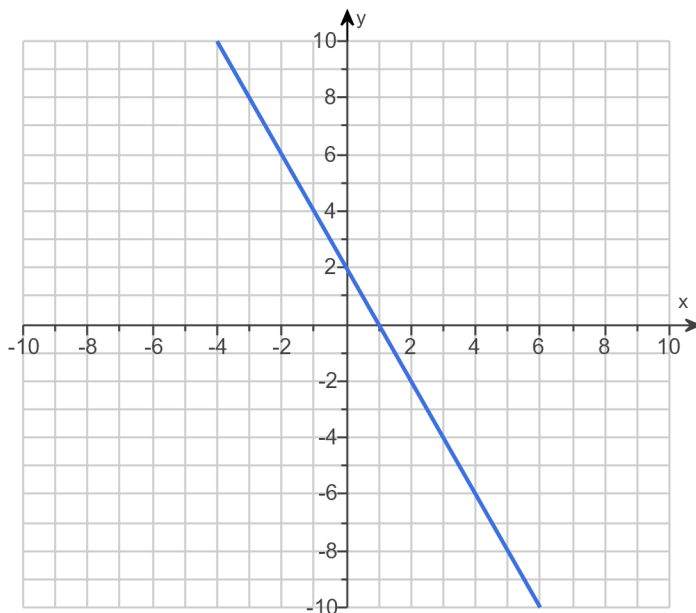
81. Solve the absolute value equation.

$$|2x - 1| = 7$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○ **A.** The solution set is { _____ }.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)

○ **B.** The solution set is ∅.

Answer: A. The solution set is { **4, − 3** }.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
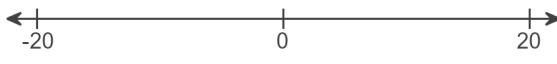
82. Solve the inequality. Then graph the solution set.

$$|x - 2| < 6$$

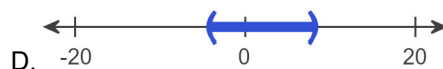Select the correct choice below and, if necessary, fill in the answer box within your choice.

○ **A.** The solution is one or more intervals. The solution is _____ .
(Simplify your answer. Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)

○ **B.** There are only one or two solutions. The solution set is { _____ } .
(Type an integer or a fraction. Use a comma to separate answers as needed.)

○ **C.** There is no solution.

Choose the correct graph below.

○ **A.**

○ **B.**

○ **C.**

○ **D.**

○ **E.**

○ **F.**

Answers A. The solution is one or more intervals. The solution is **(− 4,8)** .
(Simplify your answer. Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)
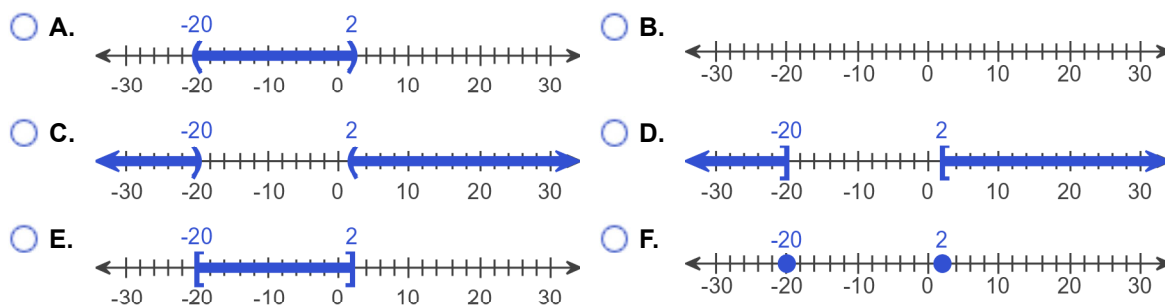
D.

83. Solve the inequality. Graph the solution set.

$|x + 9| \geq 11$

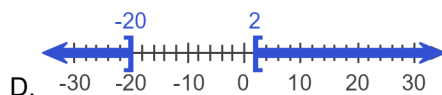Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** The solution is one or more intervals. The solution is _____ .
  (Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)
- **B.** There are only one or two solutions. The solution set is { _____ }.
  (Use a comma to separate answers as needed.)
- **C.** There is no solution.

Choose the correct graph below.

- **A.**
- **B.**
- **C.**
- **D.**
- **E.**
- **F.**

Answers A. The solution is one or more intervals. The solution is $(-\infty, -20] \cup [2, \infty)$.

(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)

D.

84. Simplify the radical. Assume that all variables represent positive real numbers.

$\sqrt{25a^4b^{40}}$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $\sqrt{25a^4b^{40}} =$ _____
- **B.** The square root is not a real number.

Answer: A. $\sqrt{25a^4b^{40}} = \boxed{5a^2b^{20}}$

85.

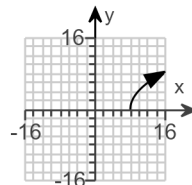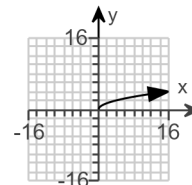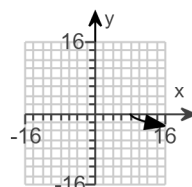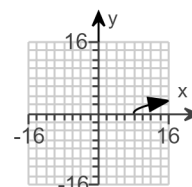Identify the domain and then graph the function, using the table to the right.

$$f(x) = \sqrt{x - 8}$$

x	f(x)
8	
9	
17	
24	

The domain of the function f(x) is [ ].
(Type your answer in interval notation.)

Complete the table to the right.

Graph the function. Choose the correct graph to the right.
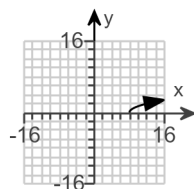
○ **A.**

○ **B.**

○ **C.**

○ **D.**

Answers [8,∞)

0

1

3

4

D.

---

86. Use radical notation to rewrite the expression. Simplify if possible.

$$243^{2/5}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○ **A.** $243^{2/5} = $ _____
(Simplify your answer. Type an exact answer, using radicals as needed.)

○ **B.** The answer is not a real number.

Answer: A. $243^{2/5} = $ [**9**] (Simplify your answer. Type an exact answer, using radicals as needed.)

87.

Simplify by factoring.

$\sqrt{75}$

$\sqrt{75}$ = [   ]

(Type an exact answer, using radicals as needed.)

Answer: $5\sqrt{3}$

---

88. Simplify. Assume that the variable represents a nonnegative real number.

$\sqrt{121x^5}$

$\sqrt{121x^5}$ = [   ] (Type an exact answer, using radicals as needed.)

Answer: $11x^2\sqrt{x}$

---

89. Simplify. Assume that the variables represent nonnegative real numbers.

$\sqrt{36a^4b^7}$

$\sqrt{36a^4b^7}$ = [   ] (Type an exact answer, using radicals as needed.)

Answer: $6a^2b^3\sqrt{b}$

---

90. Solve.

$\sqrt{x-13} = 7$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○ **A.** The solution(s) is(are) x = _____ .
(Use a comma to separate answers as needed.)

○ **B.** The solution set is $\varnothing$.

Answer: A. The solution(s) is(are) x = [**62**] . (Use a comma to separate answers as needed.)

---

91. Solve.

$\sqrt{x+3} = \sqrt{2x-5}$

Select the correct choice below and fill in any answer boxes present in your choice.

○ **A.** x = _____ (Simplify your answer. Use a comma to separate answers as needed.)

○ **B.** There is no solution.

Answer: A. x = [**8**] (Simplify your answer. Use a comma to separate answers as needed.)

---

92. Add.

$(3 - 9\,i\,) + (2 + 8\,i\,)$

$(3 - 9i) + (2 + 8i) = \boxed{}$
(Simplify your answer. Type your answer in the form a + bi.)

Answer: $5 - i$

93. Subtract.

$(6 + 7\,i\,) - (9 - 8\,i\,)$

$(6 + 7\,i\,) - (9 - 8\,i\,) = \boxed{}$
(Simplify your answer. Type your answer in the form a + bi.)

Answer: $-3 + 15\,i$

94. Multiply.

$(7 + 5i)(3 + i)$

$(7 + 5i)(3 + i) = \boxed{}$
(Simplify your answer. Type your answer in the form a + bi.)

Answer: $16 + 22\,i$

95. Perform the indicated operation.

$$\frac{9 - 8\,i}{9 + i}$$

$\dfrac{9 - 8\,i}{9 + i} = \boxed{}$
(Type your answer in the form a + bi. Use integers or fractions for any numbers in the expression.)

Answer: $\dfrac{73}{82} - \dfrac{81}{82}\,i$

96. Use the square root property to solve the equation. The equation has real number solutions.

$(x + 3)^2 = 36$

$x = \boxed{}$
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

Answer: $3, -9$

97. Solve the equation by completing the square. The equation has real number solutions.

$$x^2 + 18x = -32$$

x = [   ]
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

Answer: $-2, -16$

98. Use the quadratic formula to solve the equation.

$$m^2 + 5m + 4 = 0$$

m = [   ]
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

Answer: $-4, -1$

99. Use the quadratic formula to solve the equation. The equation has real number solutions.

$$-7y = 4y^2 + 3$$

y = [   ]
(Type a simplified answer, using fractions and radicals as needed. Use a comma to separate answers as needed.)

Answer: $-\dfrac{3}{4}, -1$

100. Use the quadratic formula to solve the equation.

$$x^2 + 4x + 29 = 0$$

The solution(s) is/are x = [   ].
(Simplify your answer. Type an exact answer, using radicals and i as needed. Use a comma to separate answers as needed.)

Answer: $-2 + 5i, -2 - 5i$

101. Find the vertex of the graph of the following quadratic function.

$$f(x) = -4x^2 - 8x - 6$$

The vertex is [   ].
(Type an ordered pair.)

Answer: $(-1, -2)$