1. Solve for x: $-49 = \frac{7}{9}(x - 50)$
   a. 113
   b. -13
   c. $\frac{9}{7}$
   d. None of the above.

2. Solve for p: $\frac{5p}{7} - 18 = -43$
   a. -31 b. $-85\frac{2}{5}$ c. -50 d. -35

3. Find the value of y. $-6y + 14 + 4y = 32$
   a. 18   b. 1.8   c. -9 d. 9

4. Solve $3.1t - 5.8m = 11$ for t.
   a. $t = \frac{5.8m+11}{3.1m}$ b. $t = 5.8m + 11$ c. $t = \frac{5.8m-11}{3.1}$ d. $t = \frac{5.8m+11}{3.1}$

5. $12 + 10w \geq 8(w + 12)$
   a. $w \geq -42$ b. $w \geq 48$ c. $w \geq 42$ d. $w \geq 54$

6. $\frac{1}{5} + \frac{1}{3}x > \frac{1}{2}x - \frac{1}{4}$
   a. $\frac{27}{10} < x$ b. $x < \frac{2}{9}$ c. $x < \frac{27}{10}$ d. $x < \frac{3}{40}$

7. What is the sum of the solutions for $-2|h - 7| = -28$.
   a. No solution   b. 14   c. 21   d. -14

8. Find the solutions for $4\left|x + \frac{1}{3}\right| = 20$.
   a. $x = 4\frac{11}{12}$ or $-4\frac{11}{12}$ c. $x = 4\frac{2}{3}$ or $-5\frac{1}{3}$
   b. $x = 4\frac{11}{12}$ d. No solution.

9. What is the sum of the solutions for the system of equations. $\begin{cases} -4x + 4y = -8 \\ x - 4y = -7 \end{cases}$
   a. 8
   b. -8
   c. 2
   d. None of the above.

10. Solve $\frac{x}{7} - \frac{3}{5} = \frac{4}{3}$.
    a. $6\frac{1}{8}$ c. $3\frac{4}{15}$
    b. $13\frac{8}{15}$ d. None of the above.

11. Find the sum of the solutions for $12 - |2x - 7| = -7$.
    a. 13   c. 7
    b. -6   d. None of the above

12. Simplify and rewrite with positive exponents only. $\left(\frac{4x^{-3}y^4z^{-5}}{2x^5y^7}\right)^{-2}$.
    a. $\frac{-2xz^{10}}{y^{15}}$ b. $\left(\frac{x^{16}z^{10}}{4y^6}\right)$ c. $-4x^2y^6z^{10}$ d. None of the above.

13. Find the sum of the solutions for $4x^2 + 28x - 32 = 0$.
    a. 7.5   b. -4   c. -7   d. ½

14. Solve $3x^2 = 21$.
    a. $\sqrt{7}$ b. $-\frac{\sqrt{21}}{3}, \frac{\sqrt{21}}{3}$ c. $\sqrt{7}, -\sqrt{7}$ d. $-\sqrt{7}, \sqrt{21}$

15. Solve $-3x^2 + 7x = -5$.

    a. $\dfrac{7}{6} \pm \dfrac{\sqrt{109}}{6}$ c. $\dfrac{7}{3} \pm \dfrac{\sqrt{67}}{3}$

    b. $-\dfrac{7}{3} \pm \dfrac{\sqrt{109}}{3}$ d. $-\dfrac{7}{6} \pm \dfrac{\sqrt{22}}{6}$

16. For all $x \neq \pm 6$, which of the following is equivalent to $\dfrac{x^2-x-42}{x^2-36}$?

    a. $\dfrac{x-7}{x+6}$

    b. $\dfrac{x+6}{x-6}$

    c. $\dfrac{x+7}{x+6}$

    d. $\dfrac{x+7}{x-6}$

    e. $\dfrac{x-7}{x-6}$

17. Evaluate $3(8-5)^2 + 4(7+3)^3$

    a. 1597

    b. 4027

    c. 54

    d. 3999

18. If $x = -2$, what is the value of $3x^2 + 4x - 2$?

    a. -22

    b. -6

    c. 32

    d. 2

    e. -4

19. Which of the following is a factor of $3x^2 + 10x - 8$?

    a. $3x + 2$

    b. $3x + 4$

    c. $3x - 2$

    d. $x - 2$

    e. $x - 4$

20. Which of these is the product of $(x - y)$ and $(2x + y)$?

    a. $-x - 2y$

    b. $2x^2 - xy - y^2$

    c. $\dfrac{2x+y}{x-y}$

    d. $\dfrac{x-y}{2x+y}$

    e. $2x^2 - y^2$

21. Evaluate $\dfrac{2(x+3y)}{x-y}$ for $x = -3$ and $y = 5$.

    a. -1

    b. -4

    c. 18

    d. -13

    e. -3

22. Solve $\frac{1}{2} - \frac{5}{4} = x + \frac{1}{4}$

    a. -1

    b. $\frac{7}{4}$

    c. -4

    d. 1

    e. $-\frac{3}{4}$

23. Solve for x: $-2x + 11 \geq 17$.

    a. $x \leq -3$

    b. $x \geq -3$

    c. $x \geq 3$

    d. $x \geq -\frac{5}{2}$

    e. $x \leq 8$

24. Multiply: $\frac{x^2+6x+9}{x^2+x-2} \cdot \frac{x^2-4}{x^2+2x-3}$

    a. $\frac{(x+3)(x-2)}{(x-1)^2}$

    b. $(x+3)(x-2)$

    c. $\frac{(x+3)^2}{(x+1)(x-3)}$

    d. -5

    e. 1

25. Solve this equation: $2(3x + 1) - 3(x - 3) = 4(2x + 1) + 2$

    a. $x = -1$

    b. $x = -\frac{13}{5}$

    c. $x = 1$

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

    e. $x = 0$

26. Find the sum of the solutions for $x^2 - x = 12$.

    a. 1

    b. -1

    c. -4

    d. 4

    e. None of the above.

27. What is the sum of the solutions for $x^2 - 7x + 12 = 0$.

    a. -12

    b. 12

    c. 8

    d. -7

    e. 7

28. The formula for the area of a trapezoid is $A = \frac{h}{2}(b_1 + b_2)$, where h is the height and b_1 and b_2 are the lengths of the bases. If the area is 72 inches, and the bases are 14 inches and 10 inches, what is the height?

    a. 5 inches

    b. 6 inches

    c. 144 inches

    d. 12 inches

    e. 36 inches

29. Solve for x: $\frac{1}{x} + \frac{1}{y} = \frac{1}{z}$

    a. yz

    b. $z - y$

    c. $-yz$

    d. $\frac{y-z}{yz}$

    e. $\frac{yz}{y-z}$

30. Multiply: $\sqrt[3]{a^2b}\sqrt[3]{a^5b^2}$

    a. $a^3\sqrt[3]{ab^2}$

    b. a^7b^3

    c. $a^2b\sqrt{a}$

    d. $a^2b\sqrt[3]{a}$

    e. $a\sqrt[6]{ab^3}$

31. Simplify: $\sqrt{27a^4b^6c^3}$

    a. $3ab^2c\sqrt{a}$

    b. $9a^2b^3c$

    c. $3abc$

    d. $9ab^2c$

    e. $3a^2b^3c\sqrt{3c}$

32. Simplify: $\frac{(5a^{-1}b^3)^{-2}}{a^5b}$

    a. $\frac{-10}{a^3b^7}$

    b. $\frac{1}{25a^3b^7}$

    c. $\frac{-10b^5}{a^3}$

    d. $\frac{-25}{a^3b^7}$

    e. $-25a^{-7}b^5$

33. Solve $|2x - 1| < 5$

    a. $x < 3$

    b. $x = -2, x = 3$

    c. $x < 3, x < -2$

    d. $-2 < x > 3$

    e. $-2 < x < 3$

34. Find the sum of the solutions for the system of equations. $\begin{cases} 2x + y = 1 \\ 3x - 2y = 12 \end{cases}$

    a. 2

    b. –1

    c. –4

    d. –11

    e. 0

35. Simplify: $\dfrac{\frac{x^2+2x-3}{x+2}}{\frac{x-1}{x^2-4}}$

    a. $(x^2-3)(x-4)$
    b. $(x-3)(x^2-4)$
    c. $\dfrac{1}{(x+2)^2}$
    d. $(x-2)(x-2)$
    e. $(x-2)(x+3)$

36. The formula for the surface area of a cylinder is $A = 2\pi r^2 + 2\pi rh$, where r is the radius and h is the height. Which of the following is a formula for the height in terms of the area and the radius?

    a. $A - 2\pi r^2 - 2\pi r$
    b. Ar
    c. $\dfrac{A}{2\pi r^2 + 2\pi r}$
    d. $\dfrac{A}{r^2+r}$
    e. $\dfrac{A-2\pi r^2}{2\pi r}$

37. What is the theoretical probability of getting a 2 or 3 when rolling a number cube?

    a. 1/2
    b. 1/3
    c. 1/4
    d. 1/5
    e. 1/6

38. How many outcomes are in the sample space for rolling a number cube and tossing a coin?

    a. 2
    b. 6
    c. 12
    d. 24
    e. 36

39. Which of the following is not a rational number?

    a. $\dfrac{\pi}{2\pi}$
    b. $-\sqrt{144}$
    c. 3.14
    d. $0.\overline{3}$
    e. $\sqrt{8}$

40. The vertex of a parabola is (3, 2). A second point on the parabola is (1, 7). Which of the following points is also on the parabola?

    a. (-1, 7)
    b. (3, 7)
    c. (5, 7)
    d. (3, -2)
    e. none of these