

1. Solve the system of linear equations.

$$2x - 5y = 24$$

$$x + y = -2$$

- A) (12, 0) C) dependent system; there are infinitely many solutions
B) (2, -4) D) inconsistent system; there is no solution

2. Solve $\left| \frac{1}{3}x - 7 \right| = 2$

- A) $x = 27$ or $x = -27$ B) $x = -15$ C) $x = 15$ or $x = -27$ D) $x = 15$ or $x = 27$

3. Solve the equation $3(x - 7) - 2(x - 5) = x + 11$

- A) -11 B) 0 C) all numbers are solutions D) there is no solution

4. Simplify the expression $\left[\left(\frac{1}{b} - b \right) \div \left(1 - \frac{1}{b} \right) \right] (1 + b)$

- A) 1 B) $\frac{b+1}{1-b}$ C) $-(1+b)^2$ D) $-b$

5. Simplify the expression $\frac{x^2 - 36}{x^2 + 2x - 48}$

- A) $\frac{x+6}{x+8}$ B) $-\frac{18}{x-48}$ C) $\frac{3}{4}$ D) $\frac{x-6}{x-8}$

6. Solve the equation $\frac{x+7}{5} - \frac{x-1}{3} = 2$

- A) -7 B) -2 C) there is no solution D) 13

7. Simplify $\frac{t^2 - t - 2}{3t - 6} \cdot \frac{6t + 30}{t^2 + 6t + 5}$

- A) 1 B) $\frac{t+1}{t-2}$ C) undefined D) 2

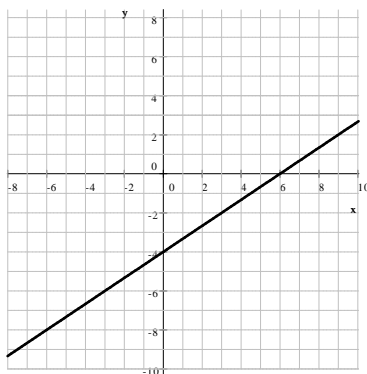
8. Multiply $(x - 3y)^2$

- A) $x^2 - 6xy + 9y^2$ B) $x^2 + 9y^2$ C) $x^2 - 9y^2$ D) $x^2 + 6xy - 9y^2$

9. Which of the following is NOT equal to $\frac{x^{-8}y^6}{x^{-2}y^{-3}}$?

- A) $\frac{1}{x^6y^{-9}}$ B) x^4y^{-2} C) $\frac{x^{-6}}{y^{-9}}$ D) $\frac{y^9}{x^6}$ E) $x^{-6}y^9$

10. Which of the following is an equation of the line shown in the figure below?



- A) $y = \frac{2}{3}x + 6$ B) $y = \frac{2}{3}x - 4$ C) $y = \frac{3}{2}x - 4$ D) $y = \frac{3}{2}x + 6$
11. Simplify the complex fraction $\frac{1 - \frac{4}{z^2}}{1 + \frac{2}{z}}$
- A) $-\frac{2}{z}$ B) $\frac{z+2}{z}$ C) $\frac{z-2}{z}$ D) $\frac{3}{z}$
12. Completely factor the expression $x^4 - 81$
- A) $(x+3)^2(x+3)(x-3)$ C) $(x^2+9)(x+3)(x-3)$ E) $(x+3)^2(x-3)^2$
 B) prime D) $(x^2+9)(x^2-9)$
13. A school purchases tickets to a show. A child ticket costs \$8 and an adult ticket costs \$14. The school has paid a total of \$610 for 65 tickets. How many of the 65 tickets were for adults?
- A) can not be determined B) 27 C) 15 D) 50 E) 5
14. Simplify $\frac{2}{p-5} - \frac{p+11}{p^2-2p-15}$
- A) $-\frac{p+5}{p+3}$ B) $\frac{1}{p+3}$ C) $\frac{p+17}{p^2-2p-15}$ D) $\frac{p+14}{p^2-2p-15}$ E) $\frac{-5}{p^2-17}$
15. Solve $x^2 + 22 = 10x$
- A) no solution B) 3.2 and 6.7 C) $3 + \sqrt{2}$ and $3 - \sqrt{2}$ D) $5 \pm \sqrt{3}$ E) $\sqrt{2}, -\sqrt{2}$
16. Simplify the expression $\sqrt{12} - 2\sqrt{75} + \sqrt{48}$
- A) $-4\sqrt{3}$ B) $9\sqrt{3} + \sqrt{10}$ C) $\sqrt{3}$ D) $-3\sqrt{10}$
17. Perform the indicated operations and simplify $(3 - 2\sqrt{5})(\sqrt{5} - 1)$
- A) $-8\sqrt{5}$ B) $\sqrt{5} + 7$ C) $5\sqrt{5} - 13$ D) $5\sqrt{5} - 17$

18. Simplify the expression $(3 - \sqrt{5})^2$.

- A) 4 B) $14 - 6\sqrt{5}$ C) $8\sqrt{5}$ D) 20

19. Simplify: $\frac{2m - 1}{m^2 - m - 2} - \frac{1}{m + 1}$

- A) $\frac{m - 3}{m^2 - m - 2}$ B) $\frac{1}{m - 2}$ C) $\frac{2(m - 1)}{m^2 - 2m - 1}$ D) $\frac{-m - 3}{2m + 2}$

20. Simplify: $\frac{\frac{3}{x - 1} - 1}{\frac{2}{x - 1} + 1}$

- A) $\frac{-x + 2}{x + 1}$ B) $\frac{3}{2}$ C) $\frac{2}{3}$ D) $\frac{-x + 4}{x + 1}$