1. Simplify the expression $\left(\frac{2}{3} - 3\frac{1}{5}\left(-\frac{7}{8}\right)\right) \div \left(2\frac{3}{5}\right) - \frac{1}{3}$.
   A) $\frac{55}{39}$ B) $\frac{26}{17}$ C) $\frac{2}{3}$ D) 1

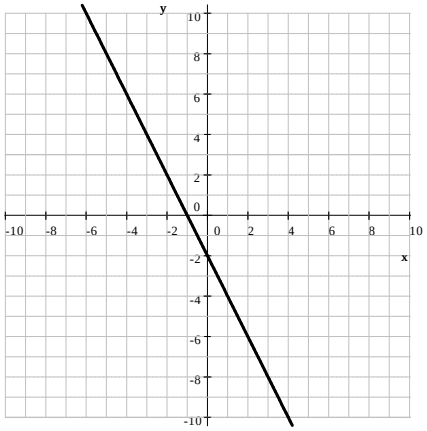
2. A couch is on a special sale at a 15% discount. If the sale price of the couch is \$357, what is the price of the coat before the discount?
   A) \$528 B) \$460 C) \$410.55 D) \$420

3. The difference between two numbers is 38. The sum of the smaller number and twice the larger number is 115. Find the larger number.
   A) -46 B) -3 C) 51 D) 25

4. Solve $I = PRT$ for R.
   A) $R = I - P - T$ B) $R = I - PT$ C) $R = \frac{PT}{I}$ D) $R = \frac{I}{PT}$

5. For the staright line $3x = 12 - 4y$, find the y-intercept.
   A) $(0, 3)$ B) $(0, -3)$ C) $(3, 0)$ D) $(-3, 0)$

6. The graph shown on the picture below is that of which of the following equations?



   A) $x + 2y = -2$ B) $-x + 2y = 2$ C) $2x + y = -2$ D) $x - 2y = 2$

7. Solve the equation $\frac{2x+3}{5} - \frac{x-5}{3} = 1$
   A) There is no solution B) 31 C) -33 D) -19

8. Find an equation of the straight line that is parallel to $y = -2x + 3$ and passes through the point $(-6, 1)$.
   A) $y = \frac{1}{2}x + 4$ B) $y = -\frac{1}{2}x - 2$ C) $y = 2x + 13$ D) $y = -2x - 11$

9. Find an equation of the straight line that is perpendicular to $y = -2x + 3$ and passes through the point $(-6, 1)$.
   A) $y = \frac{1}{2}x + 4$ B) $y = -\frac{1}{2}x - 2$ C) $y = 2x + 13$ D) $y = -2x - 11$

10. Simplify the expression $\frac{3ax - 6ay - bx + 2by}{3a - b}$
    A) $2x - 4y$ B) $x - 2y$ C) $ax - 6y - x + by$ D) $-6ay + 2by$

11. Simplify $\dfrac{x^2+2x-15}{x^2-8x+15}$

A) $-\dfrac{1}{4}$ B) $\dfrac{x+3}{x-3}$ C) -1 D) $\dfrac{x+5}{x-5}$

12. Simplify $\dfrac{2ax+6ay-bx-3by}{6ax-2ay-3bx+by}$

A) $\dfrac{x+3y}{3x-y}$ B) $\dfrac{x-3y}{3x+y}$ C) $\dfrac{x+y}{x-y}$ D) $\dfrac{x-y}{x+y}$

13. Simplify the expression $3\sqrt{20}-4\sqrt{45}+2\sqrt{245}$

A) $8\sqrt{5}$ B) $-2\sqrt{5}$ C) $32\sqrt{5}$ D) $-20\sqrt{5}$

14. Let $a=-3+\sqrt{2}$. Compute the exact value of $a^2+6a+10$.

A) $39-12\sqrt{2}$ B) $5\sqrt{2}$ C) 3 D) $12\sqrt{2}+39$

15. Simplify the expression $\left(\sqrt{10}-3\right)^3$

A) $37\sqrt{10}-117$ B) $10\sqrt{10}-27$ C) $19-6\sqrt{10}$ D) $\sqrt{10}-3$

16. Rationalize the denominator in the expression $\dfrac{5}{\sqrt{11}-4}$

A) $-\sqrt{11}-4$ B) $\dfrac{\sqrt{11}+4}{5}$ C) $\sqrt{11}-4$ D) $\dfrac{5\sqrt{11}-4}{5}$

17. Find the distance between the points $A\,(-5,-12)$ and $B\,(3,3)$.

A) 7 B) 17 C) $\sqrt{161}$ D) 13

18. Factor $3ab^2+9a-2ab^3-6ab$

A) $(3a-2b)\left(b^2+3\right)$ B) $a\left(3+2b^2\right)(b-3)$ C) $a\left(3-2b^2\right)(b+3)$ D) $a\,(3-2b)\left(b^2+3\right)$

19. Determine whether the line connecting the points $P\,(-8,4)$ and $Q\,(24,20)$ is parallel or perpendicular (or neither) to a line with a slope of $m=-2$.

A) parallel B) perpendicular C) neither D) can not be determined

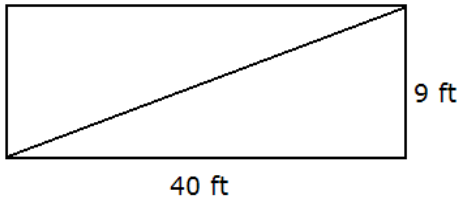
20. The solutions of the equation $x^3=24x^2+217x$ are

A) $-7,0,7$ B) $-31,31$ C) $-7,0,31$ D) there is no soluton

21. The price of a product was increased by 10% and decreased by 10%. The resulting price is

A) less than the original price
B) the same as the original price
C) more than the original price
D) less or more than the original price, depending on whether we first increase and then decrease or vica versa.

22. Find the length of the diagonal of the rectangle shown on the picture below.



A) $7\sqrt{31}$ ft B) 41 ft C) 49 ft D) $6\sqrt{10}$ ft

23. Find all real solutions of the equation $x^2 = 2x + 1$
A) $x = 1 - \sqrt{8},\ x = 1 + \sqrt{8}$ C) There is no real solution
B) $x = -1$ D) $x = 1 - \sqrt{2},\ x = 1 + \sqrt{2}$

24. Solve the equation $\left|\frac{1}{3}x - 1\right| + 3 = 7$.
A) -9, 15 B) -27, 15 C) -11, 13 D) 9

25. We have invested a total of \$ 5000 in two bank accounts. One account earns 7% interest per year, the other earns 8% per year. How much did we invest at 8% if the combined interest from the two account was \$ 382?
A) \$ 1700 B) \$ 2500 C) \$ 3200 D) \$ 4200