1. Use the quadratic formula to solve this equation: $3x^2 - 2x + 1 = 0$.

2. (a) Graph the equation $y = x^2 - 2x + 1$. (b) Find the coordinates of the points of intersection between $y = x^2 - 2x + 1$ and $y = 4$. (c) Shade the region determined by $y > x^2 - 2x + 1$ and $y < 4$.

3. Find all pairs (x, y) that satisfy both of the following equations simultaneously:

$$2x + 3y = 5$$
$$x - 2y = 8$$

4. Simplify:

$$\sqrt{\frac{3}{2}} + 4\sqrt{\frac{2}{3}} + \sqrt{24}$$

5. Solve for x:

$$x^{2/3} = 4$$

6. Solve for x:

$$\frac{5}{6} + \frac{3}{x + 2} = \frac{2}{3}$$

7. Simplify:

$$\frac{x^3 - 16x - 6x^2}{x^2 - 8x - 20} \times \frac{-50 - 5x + x^2}{x^3 - 5x^2 - 24x}$$

8. Find three consecutive integers such that the product of the first and the second is equal to the product of −6 and the third.

9. How many different ways can all four of the letters A, B, C, and D be ordered if no repetition is allowed?

10. Find the equation of the line that passes through (2, 1) and is perpendicular to $2x - 3y = 6$.

Test Answers

1. $\dfrac{1}{3} \pm \dfrac{\sqrt{2}}{3}i$

2.

$x;\ (-1, 4), (3, 4)$
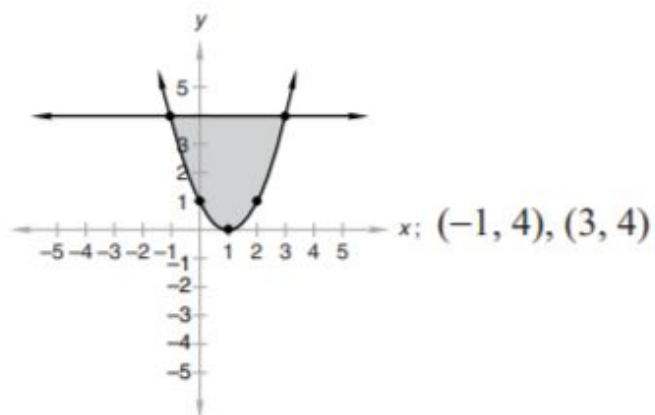
3. $\left(\dfrac{34}{7}, \dfrac{-11}{7} \right)$

4. $\dfrac{23\sqrt{6}}{6}$

5. $x = 8$

6. $x = -20$

7. $\dfrac{x + 5}{x + 3}$

8. $-4, -3, -2$ or $-3, -2, -1$

9. 24 ways

10. $y = \dfrac{-3}{2}x + 4$