

Mid-Unit Test Review

Solve each equation.

1) $36 = -2 + 2r$

2) $1 = \frac{x}{8} - 1$

3) $-9 - 6k = -4k + 6 - 5$

4) $1 = \frac{8 + k}{8}$

5) $\frac{a + 2}{3} = \frac{a + 1}{6}$

6) $-3 + 2(5m - 5) = -4(-4m - 7) - 5$

Solve each equation.

7) $11 = \sqrt{\frac{n}{7}} + 10$

8) $-5 + \sqrt{3x + 4} = -1$

Solve each equation by taking square roots.

9) $v^2 - 6 = 29$

10) $4b^2 = 116$

Solve each equation and tell how many solutions it has.

11) $7 + 6a - 6a = 11$

12) $m - 2m = -2$

13) $2r + 6 - 2r = 6$

14) $1 + 2x - 2x = -1$

$$15) \frac{5x}{3} + 2x = 11$$

$$15.5) 2x = 5x$$

Write an equation to represent the word problem and then answer the question being asked.

16) John's Lawn Mowing Company charges a service charge of \$1.50 for the first square foot of lawn that is mowed and then \$0.75 for every additional square foot mowed. Write an equation to represent the price P of mowing a lawn that is x square feet, for any amount of square feet larger than or equal to 1 square foot.

17) A plane flies 5,000 miles on 60 gallons of fuel. How many gallons will the plane need to travel only 3,000 miles?

Justify the Steps of the Equation Solved Below

$$18) 2 - 4x = -4(1 - 8x) + 6$$

$$\textcircled{1} \quad 2 - 4x = -4(1 - 8x) + 6 \quad \textcircled{1}$$
$$2 - 4x = -4 + 32x + 6$$

$$\textcircled{2} \quad 2 - 4x = -4 + 6 + 32x \quad \textcircled{2}$$

$$\textcircled{3} \quad 2 - 4x = 2 + 32x \quad \textcircled{3}$$

$$\textcircled{4} \quad \begin{array}{r} 2 - 4x = 2 + 32x \\ +4x \quad \quad +4x \\ \hline 2 = 2 + 36x \end{array} \quad \textcircled{4}$$

$$\textcircled{5} \quad \begin{array}{r} 2 = 2 + 36x \\ -2 \quad -2 \\ \hline 0 = 36x \end{array} \quad \textcircled{5}$$

$$\textcircled{6} \quad \begin{array}{r} 0 = 36x \\ 36 \quad 36 \\ \hline x = 0 \end{array} \quad \textcircled{6}$$

$$\boxed{x = 0}$$