

To receive full credit, show all work and present the exact value of solutions.

1. Simplify each of the following expressions. Show all steps.

(a) $\sqrt{(-1)^4 - 6(2^2 - (-3)^2) - (-1)^3 + 10 \div 5 \cdot 2} =$

(b) $\frac{-3^2 - (-3)^2 - 16 \div (-2) \cdot (-2) + (-2)^2}{|(-4)(-7) - (-2)|} =$

(c) $\frac{(-1)^2 - \left(-\frac{1}{2}\right)^2}{\left(\frac{5}{8}\right)} + \frac{1}{5} =$

2. Evaluate $\frac{3ab + 2a^2 - 2b^2}{a + 2b}$ if

(a) $a = 2$ and $b = -3$

(b) $a = -1$ and $b = -2$

(c) $a = -6$ and $b = 3$

(d) $a = -\frac{1}{2}$ and $b = \frac{3}{4}$

3. Solve each of the following equations. Make sure to check your solutions.

(a) $8(x - 3) - 3(5 - 2x) = x$

(b) $\frac{3x - 1}{4} + \frac{8 - 4x}{3} = -3 - x$

(c) $\frac{3x - 2}{5} + \frac{x + 4}{3} = \frac{14(x + 1)}{15}$

(d) $\frac{3}{8}x + \left(1\frac{4}{5}\right) = \frac{3}{10}$

(e) $(x - 3)(5x + 1) = 0$

4. Find the average of 55, 98, -20, -90, -15, and -34.