Algebra 1 ECA Remediation

Name Answer Key

Homework 33.1

Solve each equation with the quadratic formula.

1) $4n^2 - 8n - 22 = 0$

$a = 4$
$b = -8$
$c = -22$

$64 + 352 =$

$x = \frac{8 \pm \sqrt{(-8)^2 - 4(4)(-22)}}{2(4)}$

$= \frac{8 \pm \sqrt{416}}{8}$

$= \frac{8 \pm 4\sqrt{26}}{8}$

$= \frac{2 + \sqrt{26}}{2}$ OR $\frac{2 - \sqrt{26}}{2}$

416
2 208
2 104
2 52
2 26
2 13

$4\sqrt{26}$

2) $3b^2 - 12b - 63 = 0$

$a = 3$
$b = -12$
$c = -63$

$144 + 756 = 900$

$x = \frac{12 \pm \sqrt{(-12)^2 - 4(3)(-63)}}{2(3)}$

$= \frac{12 \pm \sqrt{900}}{6}$

$= \frac{12 \pm 30}{6}$

$= \frac{12 + 30}{6} = \frac{42}{6} = 7$

OR

$= \frac{12 - 30}{6} = \frac{-18}{6} = -3$

3) $x^2 = -4x + 96$

$+4x \quad -96 \quad +4x - 96$

$x^2 + 4x - 96 = 0$

$a = 1$
$b = 4$
$c = -96$

$16 + 384 = 400$

$x = \frac{-4 \pm \sqrt{(4)^2 - 4(1)(-96)}}{2(1)}$

$= \frac{-4 \pm \sqrt{400}}{2}$

$= \frac{-4 + 20}{2}$ OR $\frac{-4 - 20}{2}$

$= \frac{16}{2}$ OR $\frac{-24}{2}$

$= 8$ OR -12

4) $8r^2 + 1 = -11r$

$+11r \quad +11r$

$8r^2 + 11r + 1 = 0$

$a = 8$
$b = 11$
$c = 1$

$121 - 32 = 89$

$r = \frac{-11 \pm \sqrt{(11)^2 - 4(8)(1)}}{2(8)}$

$= \frac{-11 \pm \sqrt{89}}{16}$

$= \frac{-11 + \sqrt{89}}{16}$ OR $\frac{-11 - \sqrt{89}}{16}$

Divide.

5) $(x^3 + 3x^2 + 2x) \div 9x^3$

$\frac{x^3}{9x^3} + \frac{3x^2}{9x^3} + \frac{2x}{9x^3}$

$= \frac{1}{9} + \frac{1}{3x} + \frac{2}{9x^2}$

6) $(20v^5 + 12v^4 + 4v^3) \div 4v$

$\frac{20v^5}{4v} + \frac{12v^4}{4v} + \frac{4v^3}{4v}$

$= 5v^4 + 3v^3 + v^2$

Factor the common factor out of each expression.

7) $4a^6 - 24a^4 + 24a^3$

$4a^3(a^3 - 6a + 6)$

8) $-9n^5 + 90n^4 - 72n$

$-9n(n^4 - 10n^3 + 8)$

Answers to Homework 33.1

1) $\left\{\frac{2+\sqrt{26}}{2}, \frac{2-\sqrt{26}}{2}\right\}$

2) $\{7, -3\}$

3) $\{8, -12\}$

4) $\left\{\frac{-11+\sqrt{89}}{16}, \frac{-11-\sqrt{89}}{16}\right\}$

5) $\frac{1}{9}+\frac{1}{3x}+\frac{2}{9x^2}$

6) $5v^4+3v^3+v^2$

7) $4a^3(a^3-6a+6)$

8) $9n(-n^4+10n^3-8)$