Algebra 1 ECA Remediation

Name Answer Key

Homework 36.1

Solve each equation by factoring.

1) $(a+6)(a+3)=0$

$a+6=0$ OR $a+3=0$

$-6 \quad -6$ $\quad$ $-3 \quad -3$

$a=\boxed{-6}$ $\quad$ $a=\boxed{-3}$

2) $(k-5)(k+4)=0$

$k-5=0$ OR $k+4=0$

$+5 \quad +5$ $\quad$ $-4 \quad -4$

$k=\boxed{5}$ $\quad$ $k=\boxed{-4}$

3) $v^2+2v-35=0$

-35

$1 \quad 35$

$-5 \quad +7$

$(v-5)(v+7)=0$

$v-5=0$ $\quad$ $v+7=0$

$+5 \quad +5$ $\quad$ $-7 \quad -7$

$v=\boxed{5}$ $\quad$ $v=\boxed{-7}$

4) $b^2+7b=0$

$b(b+7)=0$

$b=\boxed{0}$ $\quad$ $b+7=0$

$-7 \quad -7$

$b=\boxed{-7}$

5) $x^2+14x=-49$

$+49 \quad +49$

49

$1 \quad 49$

$+7 \quad +7$

$x^2+14x+49=0$

$(x+7)(x+7)=0$

$x+7=0$

$-7 \quad -7$

$x=\boxed{-7}$

6) $x^2+10=7x$

$-7x \quad -7x$

$x^2-7x+10=0$

10

$1 \quad 10$

$-2 \quad -5$

$(x-2)(x-5)=0$

$x-2=0$ $\quad$ $x-5=0$

$+2 \quad +2$ $\quad$ $+5 \quad +5$

$x=\boxed{2}$ $\quad$ $x=\boxed{5}$

Find the value of c that completes the square.

7) $n^2-26n+c$

$\left(\frac{-26}{2}\right)^2=(-13)^2=\boxed{169}$

8) $a^2-32a+c$

$\left(\frac{-32}{2}\right)^2=(-16)^2=\boxed{256}$

Solve each equation by completing the square.

9) $m^2+8m+9=2$

$-9 \quad -9$

$m^2+8m+\underline{16}=-7+\underline{16}$

$\left(\frac{8}{2}\right)^2$

4^2

16

$\sqrt{(m+4)^2}=\sqrt{9}$

$m+4=\pm 3$

$m+4=3$ or

$-4 \quad -4$

$\boxed{m=-1}$

$m+4=-3$

$-4 \quad -4$

$\boxed{m=-7}$

10) $p^2-10p+17=3$

$-17 \quad -17$

$p^2-10p+\underline{25}=-14+\underline{25}$

$\left(\frac{-10}{2}\right)^2$

$(-5)^2$

25

$\sqrt{(p-5)^2}=\sqrt{11}$

$p-5=\pm\sqrt{11}$

$+5 \quad +5$

$p=\boxed{5+\sqrt{11}}$ or $\boxed{5-\sqrt{11}}$

Solve each equation with the quadratic formula.

11) $3x^2 - 11x = 42$

$-42 \quad -42$

$3x^2 - 11x - 42 = 0$

$a = 3$

$b = -11$

$c = -42$

$121 + 504 = 625$

$x = \frac{11 \pm \sqrt{(-11)^2 - 4(3)(-42)}}{2(3)}$

$x = \frac{11 \pm \sqrt{625}}{6}$

$x = \frac{11+25}{6} = \frac{36}{6} = \boxed{6}$

or

$x = \frac{11-25}{6} = -\frac{14}{6} = \boxed{\frac{-7}{3}}$

12) $2n^2 + 3n = 54$

$-54 \quad -54$

$2n^2 + 3n - 54 = 0$

$9 + 432 = 441$

$a = 2$

$b = 3$

$c = -54$

$n = \frac{-3 \pm \sqrt{3^2 - 4(2)(-54)}}{2(2)}$

$n = \frac{-3 \pm \sqrt{441}}{4}$

$n = \frac{-3+21}{4}$ or $\frac{-3-21}{4}$

$= \frac{18}{4} = \boxed{\frac{9}{2}}$ $\quad \frac{-24}{4} = \boxed{-6}$

Solve each equation by taking square roots.

13) $16b^2 + 3 = 84$

$-3 \quad -3$

$\frac{16b^2}{16} = \frac{81}{16}$

$\sqrt{b^2} = \sqrt{\frac{81}{16}}$

$b = \boxed{+\frac{9}{4}}$

or

$b = \boxed{\frac{-9}{4}}$

14) $25r^2 - 8 = 28$

$+8 \quad +8$

$\frac{25r^2}{25} = \frac{36}{25}$

$\sqrt{r^2} = \sqrt{\frac{36}{25}}$

$\boxed{r = \frac{6}{5} \text{ or } \frac{-6}{5}}$

Solve each equation by factoring.

15) $2n^2 - 7n - 4 = 0$

$2(-4) = -8$

$+1 \quad -8$

$2 \quad 4$

$\underbrace{2n^2 + n}\ \underbrace{-8n - 4} = 0$

$n(2n+1) - 4(2n+1) = 0$

$(n-4)(2n+1) = 0$

$n - 4 = 0$

$+4 \quad +4$

$n = \boxed{4}$

$2n + 1 = 0$

$-1 \quad -1$

$2n = -1$

$\frac{2n}{2} = \frac{-1}{2}$

$n = \boxed{\frac{-1}{2}}$

16) $2x^2 + 3x - 2 = 0$

$2(-2) = -4$

$-1 \quad +4$

$2 \quad 2$

$\underbrace{2x^2 - x} + 4x - 2 = 0$

$x(2x-1) + 2(2x-1) = 0$

$x + 2 = 0$

$-2 \quad -2$

$x = \boxed{-2}$

$2x - 1 = 0$

$+1 \quad +1$

$\frac{2x}{2} = \frac{1}{2}$

$x = \boxed{\frac{1}{2}}$

Solve each equation.

17) $-4(a+4) + 8a = -14 + 4a$

$-4a - 16 + 8a = -14 + 4a$

$4a - 16 = 4a - 14$

$-4a \quad -4a$

$4a - 16 \neq -14$

$+16 \quad +16$

no solution

18) $16 + 2v = 4(4v + 4)$

$16 + 2v = 16v + 16$

$-2v \quad -2v$

$16 = 14v + 16$

$-16 \quad -16$

$\frac{0}{14} = \frac{14v}{14}$

$\boxed{0} = v$

Answers to Homework 36.1

1) $\{-6, -3\}$
2) $\{5, -4\}$
3) $\{5, -7\}$
4) $\{-7, 0\}$
5) $\{-7\}$
6) $\{5, 2\}$
7) 169
8) 256
9) $\{-1, -7\}$
10) $\{5 + \sqrt{11}, 5 - \sqrt{11}\}$
11) $\left\{6, -2\frac{1}{3}\right\}$
12) $\left\{4\frac{1}{2}, -6\right\}$
13) $\left\{2\frac{1}{4}, -2\frac{1}{4}\right\}$
14) $\left\{1\frac{1}{5}, -1\frac{1}{5}\right\}$
15) $\left\{-\frac{1}{2}, 4\right\}$
16) $\left\{\frac{1}{2}, -2\right\}$
17) No solution.
18) $\{0\}$