

A6 Review

Be sure to show all your thinking!

1. Multiply $2(x-3)(4x+1)$

$$2(4x^2 + x - 12x - 3)$$

$$2(4x^2 - 11x - 3)$$

$$\boxed{8x^2 - 22x - 6}$$

2. Multiply $(x-4)(x+6)$

| | | |
|------|-------|-------|
| | x | -4 |
| x | x^2 | $-4x$ |
| $+6$ | $6x$ | -24 |

$$\boxed{x^2 + 2x - 24}$$

3. Factor $x^2 + 8x + 12$

$$\boxed{(x+6)(x+2)}$$

4. Factor $x^2 - 5x - 36$

$$\boxed{(x-9)(x+4)}$$

5. Factor $3x^2 - 27x + 24$

$$3(x^2 - 9x + 8)$$

$$3(x-1)(x-8)$$

6. Solve $x^2 - 2 = 62$

$$+2 \quad +2$$

$$\sqrt{x^2} = \sqrt{64}$$

$$\boxed{x = \pm 8}$$

7. Solve

$$(x-5)^2 + 4 = 85$$

$$\begin{array}{r} -4 \quad -4 \\ \sqrt{(x-5)^2} = \sqrt{81} \end{array}$$

$$x-5 = 9 \quad \text{or} \quad x-5 = -9$$

$$\begin{array}{r} +5 \quad +5 \\ \hline x = 14, -4 \end{array}$$

8. Solve

$$x^2 - 2x = 63$$

$$\begin{array}{r} -63 \quad -63 \\ \hline x^2 - 2x - 63 = 0 \end{array}$$

$$(x-9)(x+7) = 0$$

$$x-9 = 0 \quad \text{or} \quad x+7 = 0$$

$$\boxed{x = 9, -7}$$

9. Solve

$$x^2 - 3x - 10 = 0$$

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

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

$$\boxed{x = 5, -2}$$

10. Solve

$$-2x^2 - 3x + 9 = 0$$

$$x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(-2)(9)}}{2(-2)}$$

$$x = \frac{3 \pm \sqrt{9+72}}{-4} \quad x = \frac{3 \pm 9}{-4} \quad \boxed{x = \frac{3}{2}, \frac{3}{2}}$$

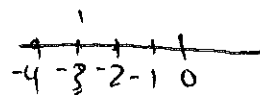
11. Convert to standard form $y = (x-3)(x+2)$

$$y = x^2 - x - 6$$

12. Convert to vertex form $y = x^2 + 6x + 8$

$$y = (x+4)(x+2)$$

zeros: $-4, -2$



middle: $x = -3$

$$y = (-3+4)(-3+2)$$

$$y = 1 \cdot (-1)$$

$$y = -1$$

$$y = (x+3)^2 - 1$$

13. Convert to factored form $y = (x-2)^2 - 16$

$$y = (x-2)(x-2) - 16$$

$$y = x^2 - 4x + 4 - 16$$

$$y = x^2 - 4x - 12$$

14. Convert to standard form $y = -2(x-2)^2 - 3$

$$y = -2(x^2 - 4x + 4) - 3$$

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

$$y = -2x^2 + 8x - 11$$

15. Convert to vertex form $y = (x-4)(x+2)$

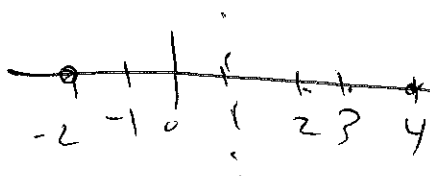
zeros: $4, -2$

middle: $x = 1$

$$y = (1-4)(1+2)$$

$$= -3 \cdot 3$$

$$y = -9$$



$$y = (x-1)^2 - 9$$