Name: Key

Graphing and Solving Quadratics [redacted] Review

Graph the following quadratic equation and find all key information

1.) $y = -\frac{1}{2}x^2 - 2x + 3$

$\frac{2}{2(-\frac{1}{2})} = \frac{2}{-1} = -2$

Opens: down

Axis of Symmetry: $x = -2$

Vertex: $(-2, 5)$

Max/Min: max

Domain: $(-\infty, \infty)$

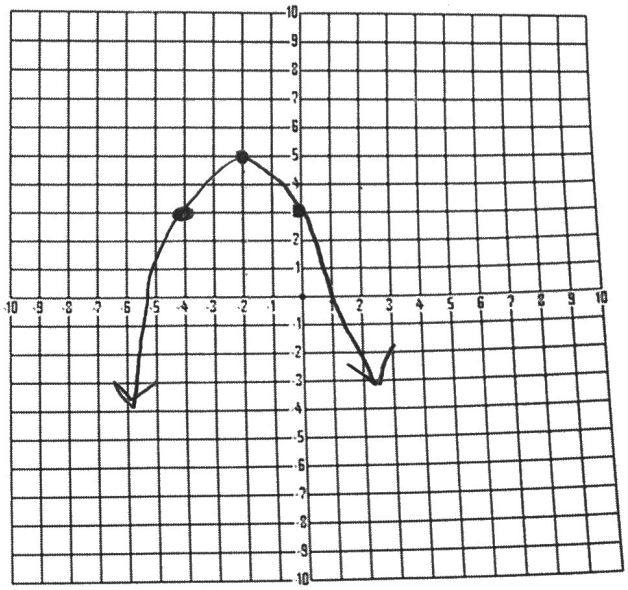
Range: $[5, \infty)$

End Behavior

$As\ x \to -\infty, f(x) \to$ $-\infty$

$As\ x \to \infty, f(x) \to$ $-\infty$

x	y
-3	4.5
-2	5
-1	4.5



2 QUAD, 1 SQRT, 3 TRI

Solve the following problems by the specified method.

2.) FACTORING

$3x^2 + 6x - 1 = 2 - 2x$

-9, $+9$, -1, 8

$3x^2 + 8x - 3 = 0$

$3x^2 + 9x - 1x - 3 = 0$

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

$x = \frac{1}{3} \quad x = -3$

Solution(s): $x = -\frac{1}{3} \quad x = 3$

3.) QUADRATIC FORMULA (Simplified & Exact)

$3x^2 - 9x + 4 = -3 + 3x$

$3x^2 - 12x + 7 = 0$

$\frac{12 \pm \sqrt{144 - 4(3)(7)}}{2(3)}$

$\frac{12 \pm \sqrt{60}}{6} = \frac{12 \pm 2\sqrt{15}}{6}$

Solution(s): $\frac{6 \pm \sqrt{15}}{3}$

$\sqrt{20}$
$2\sqrt{5}$

olve each quadratic equation by the method of your choice.

4.) $5x^2 + 4x + 4 = 3x + 2$

$5x^2 + x + 2 = 0$

10
1

$$\frac{-1 \pm \sqrt{1^2 - 4(5)(2)}}{2(5)}$$

$$\frac{-1 \pm \sqrt{-39}}{10} = \boxed{\frac{-1 \pm i\sqrt{39}}{10}}$$

5.) $2(x+5)^2 + 64 = 24$

$2(x+5)^2 = -40$

$(x+5)^2 = -20$

$x + 5 = \pm 2i\sqrt{5}$

$\boxed{x = -5 \pm 2i\sqrt{5}}$

Solution(s): _____

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6.) $5x^2 + 9x - 10 = 3x^2 + 10x$

-20
-5
4
-1

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

$2x^2 - 5x + 4x - 10 = 0$

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

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

7.) $3x^2 - 12x + 5 = 2x - 3$

+24
-12
-2
-14

$3x^2 - 14x + 8 = 0$

$3x^2 - 12x - 2x + 8 = 0$

$3x(x-4) - 2(x-4) = 0$

$(3x-2)(x-4) = 0$

$\boxed{x = \frac{2}{3} \quad x = 4}$

Solution(s): _____

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