Chapter 9 Summative Review Worksheet   Name: _Key_

1. $y = 3x^2 - 7$

Table
2	5
1	-4
0	-7
-1	-4
-2	5

Graph

Vertex: $(0, -7)$

Equation of Axis of Symmetry: $x = 0$

Domain: $(-\infty, \infty)$ all real #s

Range: $[-7, \infty)$ $y \geq -7$

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

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

Table
0	-3
-1	-4½
-2	-5
-3	-4½
-4	-3

Graph

Vertex: $(-2, -5)$

Equation of Axis of Symmetry: $x = -2$

Domain: $(-\infty, \infty)$ all real #s

Range: $[-5, \infty)$ $y \geq -5$

3. $y = -x^2 + 4x - 5$

$\frac{-4}{2(-1)} = \frac{-4}{-2} = 2$

Table
4	-5
3	-2
2	-1
1	-2
0	-5

Graph

Vertex: $(2, -1)$

Equation of Axis of Symmetry: $x = 2$

Domain: $(-\infty, \infty)$ all real #s

Range: $(-\infty, -1]$ $y \leq -1$

Solve each equation by finding square roots. If the equation has no real number solution, write no solution.

4. $3x^2 + 27 = 0$

$$-27 \quad -27$$
$$\frac{3x^2}{3} = \frac{-27}{3}$$
$$x^2 = -9 \quad \boxed{\text{NO Solution!}}$$

5. $\frac{1}{2}x^2 - 18 = 0$

$$+18 \quad +18$$
$$2 \cdot \frac{1}{2}x^2 = 18 \cdot 2$$
$$x^2 = 36 \quad \boxed{x = \pm 6}$$

6. $4x^2 + 20 = 20$

$$-20 \quad -20$$
$$\frac{4x^2}{4} = \frac{0}{4}$$
$$x^2 = 0$$
$$\boxed{x = 0}$$

Solve by factoring. Show your work!!

7. $x^2 + 11x - 26 = 0$

$$(x+13)(x-2) = 0$$
$$\boxed{x = -13, x = 2}$$

8. $x^2 - 19x + 80 = -8$

$$+8 \quad +8$$
$$x^2 - 19x + 88 = 0$$
$$(x-8)(x-11) = 0$$
$$\boxed{x = 8, x = 11}$$

9. $5x^2 - 8x = 8 - 5x$

$$+5x \quad -8 \quad +5x$$
$$5x^2 - 3x - 8 = 0$$
$$(x+1)(5x-8) = 0$$
$$\boxed{x = -1 \text{ or } x = 8/5 \,(1.6)}$$

Solve each equation using the quadratic formula. Show your work!!! Round answers to the nearest hundredth.

10. $x^2 - 14x + 16 = 0$

$$x = \frac{14 \pm \sqrt{(-14)^2 - 4(1)(16)}}{2(1)}$$
$$x = \frac{14 \pm \sqrt{132}}{2} = x = \frac{14 \pm 11.49}{2}$$
$$\boxed{x \approx 12.75 \text{ or } x \approx 1.26}$$

11. $2x^2 - 3x = 20$

$$2x^2 - 3x - 20 = 0$$
$$x = \frac{+3 \pm \sqrt{(-3)^2 - 4(2)(-20)}}{2(2)}$$
$$x = \frac{3 \pm \sqrt{169}}{4} = x = \frac{3 \pm 13}{4}$$
$$\boxed{x = 4 \text{ or } x = -2.5}$$

12. $-x^2 + 8x + 4 = 5$

$$-x^2 + 8x - 1 = 0$$
$$x = \frac{-8 \pm \sqrt{8^2 - 4(-1)(-1)}}{2(-1)}$$
$$x = \frac{-8 \pm \sqrt{60}}{-2} = x = \frac{-8 \pm 7.75}{-2}$$
$$\boxed{x \approx 0.13 \text{ or } x \approx 7.87}$$

Solve each equation using the method of your choice. Show your work!!! Round answers to the nearest hundredth if necessary.

13. $3x^2 + 7x = x^2 - 6$

$$2x^2 + 7x + 6 = 0$$
$$(2x+3)(x+2) = 0$$
$$\boxed{x = -3/2 \text{ or } x = -2}$$

14. $3x^2 = 9x$

$$3x^2 - 9x = 0$$
$$3x(x-3) = 0$$
$$3x = 0 \quad x - 3 = 0$$
$$\boxed{x = 0 \text{ or } x = 3}$$

15. $x^2 - 64 = 0$

$$+64 \quad +64$$
$$x^2 = 64$$
$$\boxed{x = \pm 8}$$

16. $64x^2 + 12x - 1 = 0$

$$(4x+1)(16x-1) = 0$$
$$\boxed{x = -1/4 \text{ or } x = 1/16}$$
$$\boxed{x = 0.25 \text{ or } x \approx 0.06}$$

17. $x^2 + 4x = 1$

$$x^2 + 4x - 1 = 0$$
$$x = \frac{-4 \pm \sqrt{4^2 - 4(1)(-1)}}{2(1)}$$
$$x = \frac{-4 \pm \sqrt{20}}{2} = x = \frac{-4 \pm 4.47}{2}$$
$$\boxed{x \approx 0.24 \text{ or } x \approx 4.24}$$

18. $12x^2 + 16x = 28$

$$12x^2 + 16x - 28 = 0$$
$$4(3x^2 + 4x - 7) = 0$$
$$(3x+7)(x-1) = 0$$
$$\boxed{x = -7/3 \text{ or } x = 1}$$
$$\boxed{x \approx 2.33 \text{ or } x = 1}$$

Solve the system of equations.

19. $y = x^2 + 2x + 1$
$y = x + 1$

$$x^2 + 2x + 1 = x + 1$$
$$x^2 + x = 0$$
$$x(x+1) = 0$$
$$y = 0 \text{ or } x = -1$$
$$\boxed{(0,1) \text{ or } (-1,0)}$$

20. $y = 3x + 4$
$y = -x^2 + 4$

$$3x + 4 = -x^2 + 4$$
$$x^2 + 3x = 0$$
$$x(x+3) = 0$$
$$x = 0 \text{ or } x = -3$$
$$\boxed{(0,4) \text{ or } (-3,-5)}$$

21. $y = x^2$
$y = x + 2$

$$x^2 = x + 2$$
$$x^2 - x - 2 = 0$$
$$(x-2)(x+1) = 0$$
$$x = 2 \text{ or } x = -1$$
$$\boxed{(2,4) \text{ or } (-1,1)}$$