Algebra I Chapter 10 Review Name_____

Find the necessary information and graph.

1. $y = 2x^2$

a = 2

b = 0

c = 0

up or down

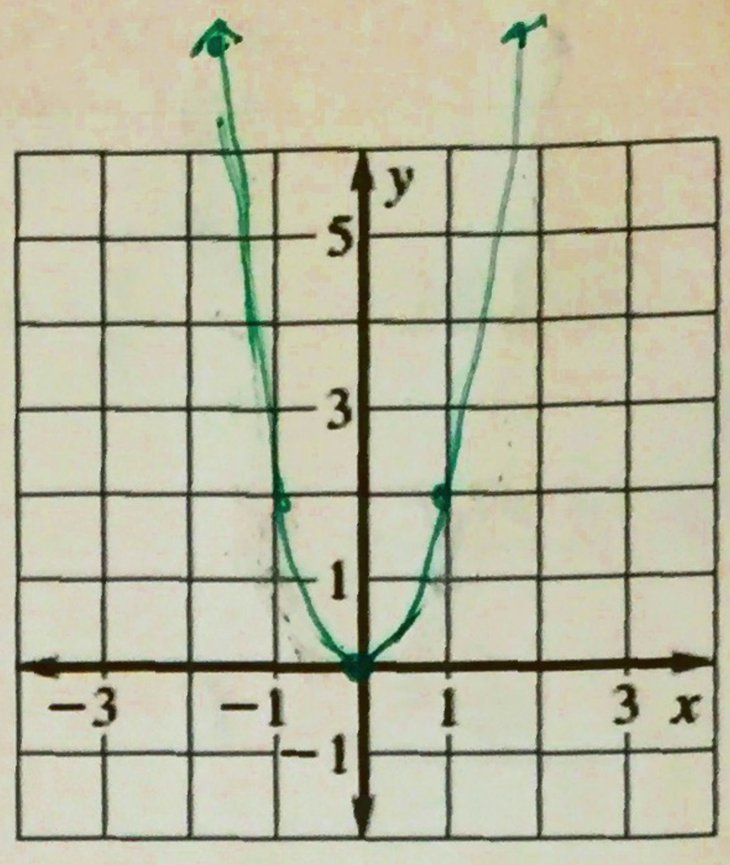
$-\frac{b}{2a}$

axis of symmetry: x = 0

vertex: (0 , 0)

two other points:

x	y
1	2
2	8



2. $y = x^2 + 6x - 14$

a = 1

b = 6

c = -14 9 - 18 - 14

up or down 9 - 32

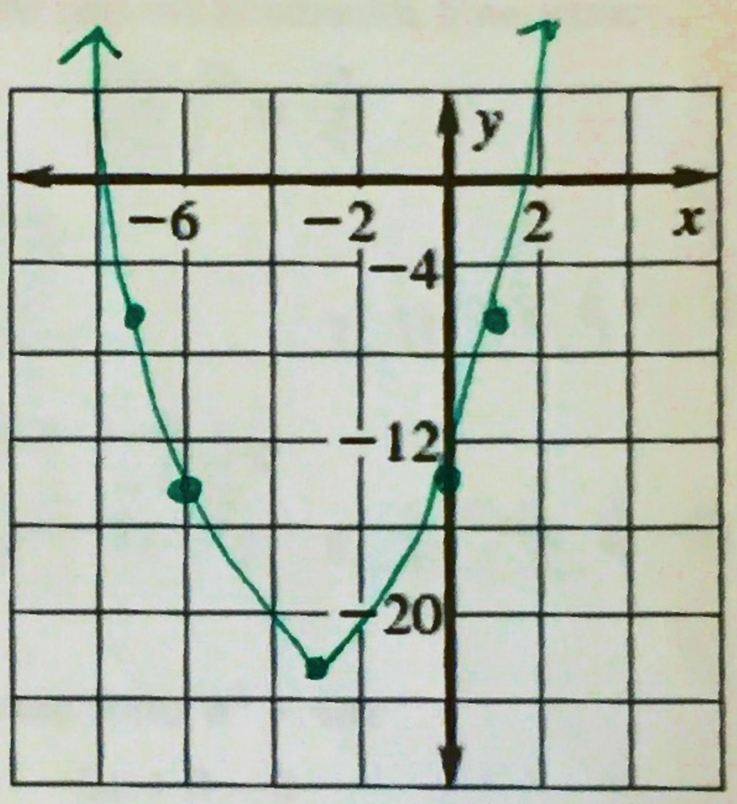
$-\frac{b}{2a}$ $\frac{-6}{2}$

axis of symmetry: x = -3

vertex: (-3 , -23)

two other points:

x	y
0	-14
1	-7



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

a = -1

b = 2

c = 4

up or down -1 + 2 + 4

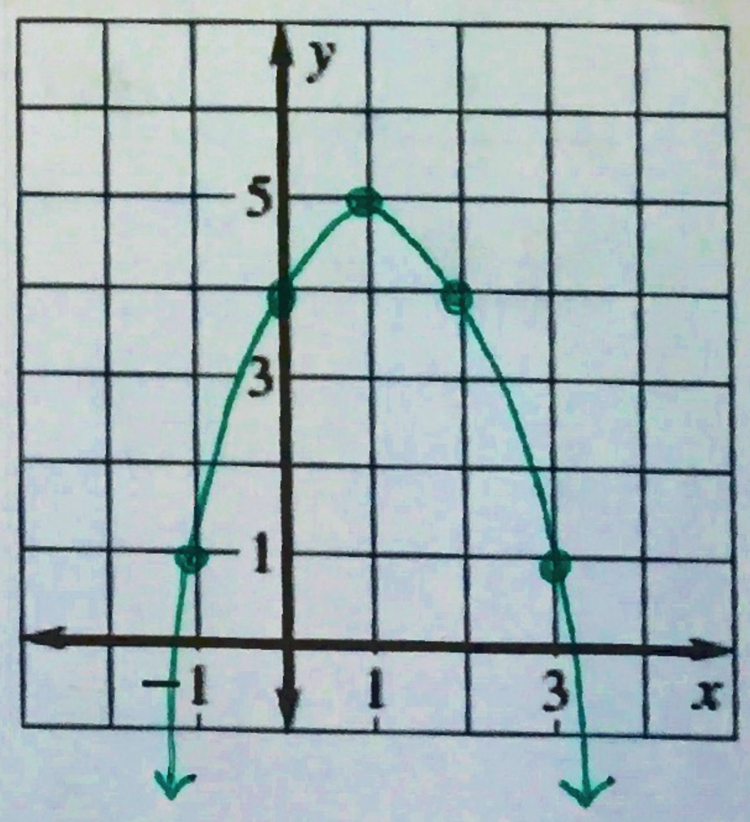
$-\frac{b}{2a}$ $\frac{-2}{-2}$ -1 - 2 + 4

axis of symmetry: x = 1

vertex: (1 , 5)

two other points:

x	y
0	4
-1	1



Solve the equation by finding square roots. Round the solutions to the nearest hundredth, if necessary.

4. $49t^2 + 25 = 0$

$\frac{49t^2}{49} = \frac{-25}{49}$

$t^2 = \frac{-25}{49}$

4. NO Soln

5. $3(x-4)^2 = 30$

$(x-4)^2 = 10$

$x-4 = 3.16 \quad -3.16$

$+4 \quad +4 \quad +4$

$x = 7.16 \quad 0.84$

5. 7.16 & 0.84

6. $16n^2 - 15 = 66$

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

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

$n = \frac{9}{4}$

6. $\pm \frac{9}{4}$

Solve the equation by completing the square. Round your answer to the nearest hundredth, if necessary.

7. $x^2 - 10x = 15$

$\left(\frac{-10}{2}\right)^2 = 25$

$+25 \quad +25$

$x^2 - 10x + 25 = 40$

$\sqrt{(x-5)^2} = \sqrt{40}$

$x - 5 = 6.32 \quad -6.32$

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

$x = 11.32 \text{ \& } -1.32$

7. 11.32 & -1.32

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

$\left(\frac{3}{2}\right)^2 = \frac{9}{4}$

$x^2 + 3x = 2$

$+9/4 \quad +9/4$

$\sqrt{(x+3/2)^2} = \sqrt{17/4}$

$x + 3/2 = 2.06 \quad -2.06$

$-3/2 \quad -3/2$

$x = 0.56 \text{ \& } -3.56$

8. 0.56 & -3.56

Tell whether the equation has *two solutions, one solution,* or, *no solution.* Hint: $b^2 - 4ac$

9. $10x^2 - 8x + 1 = 0$

$a:10 \quad b:-8 \quad c:1$

$-4 \cdot 10 \cdot 1$

$64 - 40$

24

9. 2

10. $-4x^2 + 9 = 0$

$a:-4 \quad b:0 \quad c:9$

$-4 \cdot -4 \cdot 9$

$0 + 144$

144

10. 2

11. $3x^2 - 9x + 8 = 0$

$a:3 \quad b:-9 \quad c:8$

$81 - 4 \cdot 3 \cdot 8$

$81 - 108$

-27

11. NO Sol'n

Use the quadratic formula to solve the equation. Round the solutions to the nearest hundredth, if necessary.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

12. $p^2 + 8p - 15 = 0$

a: 1 b: 8 c: -15

$$\frac{-8 \pm \sqrt{64 + 60}}{2}$$

$$\frac{-8 \pm \sqrt{124}}{2}$$

$$\frac{-8 + 11.14}{2} \qquad \frac{-8 - 11.14}{2}$$

1.57 -9.57

13. $2y^2 - 7y - 10 = 0$

a: 2 b: -7 c: -10

$$\frac{7 \pm \sqrt{49 + 80}}{4}$$

$$\frac{7 \pm \sqrt{129}}{4}$$

$$\frac{7 + 11.36}{4} \qquad \frac{7 - 11.36}{4}$$

4.59 -1.09

14. $9z^2 + 12z + 4 = 0$

a: 9 b: 12 c: 4

$$\frac{-12 \pm \sqrt{144 - 144}}{18}$$

$$\frac{-12 \pm 0}{18}$$

$$= \frac{-12 + 0}{18} \qquad \frac{-12 - 0}{18}$$

$$= -\frac{2}{3} \text{ & } -\frac{2}{3}$$

12. 1.57 & -9.57

13. 4.59 & -1.09

14. $-\frac{2}{3}$

15. For the period 1997-2003, the number of eggs y (in billions) produced in the United States can be modeled by the function $y = -1.27x^2 + 3.3x + 77$ where x is the number of years since 1997. Approximate the year in which ~~86~~ 70 billion eggs were produced.

$70 = -1.27x^2 + 3.3x + 77$

$-70 \qquad -70$

$0 = -1.27x^2 + 3.3x + 7$

a: -1.27 b: 3.3 c: 7

$$= \frac{-3.3 \pm \sqrt{10.89 - 4(-1.27)(7)}}{-2.54}$$

$$= \frac{-3.3 \pm \sqrt{10.89 + 35.56}}{-2.54}$$

$$= \frac{-3.3 \pm \sqrt{46.45}}{-2.54}$$

$$= \frac{-3.3 + 6.82}{-2.54} \text{ & } \frac{-3.3 - 6.82}{-2.54}$$

$= -1.39$ $= 3.98$

→ So $X = -1.39$ & 3.98, since we are talking about years we can't have negative time so the only possible answer is $X = 3.98$ years

add that to 1997

$+ \quad 3.98$

2000.98 round to

2001

15. 2001