

CHAPTER 10 REVIEW HW

#'s 8-18, 20, 21, 24-27, 31-33

May 14, 2012

For #'s 8-10 -
Know how to find shape, A.S., vertex & y-int

NOTE: For Problems like #13, I will give you x-int's that are integers

#8

Plot2 Plot3
Y1 = $X^2 + 4X + 1$

Equation

X	Y1
-5	16
-4	7
-3	2
-2	-3
-1	-4
0	-3
1	2
2	9

Graph

A.S: $x = -2$
V: $(-2, -3)$

#9

Plot2 Plot3
Y1 = $2X^2 - 4X - 3$

Equation

X	Y1
-1	1
0	-3
1	-5
2	-3
3	3

Graph

A.S $x = 1$
V $(1, -5)$

#10

Plot2 Plot3
Y1 = $-2X^2 + 8X + 5$

Equation

X	Y1
0	5
1	11
2	13
3	11
4	5
5	-3
6	-13

Graph

V $(2, 13)$
A.S $x = 2$

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TIPS
You need to know how to find A.S + Vertex with decimals.

#11 see Graph paper

Plot2 Plot3
Y1 = $4X^2 + X + 3$

Equation

X	Y1
-1	4
-0.5	2.25
0	3
0.5	4.25
1	6

Graph

X = NO SOL

#12

Plot2 Plot3
Y1 = $X^2 + 2X + 1$

Equation

X	Y1
-2	1
-1	0
0	1
1	4
2	9

Graph

X = -1

#13 see Graph Paper

Plot2 Plot3
Y1 = $-X^2 - 7X + 8$

Equation

X	Y1
-8	0
-7	6
-6	10
-5	12
-4	12
-3	10
-2	6
-1	0
0	-8

Graph

X = 1, -8

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Tip: A.S. is a line must write $X = \#$
Vertex is a point (x, y)

R10 #11+13 HAVE FRACTIONS FOR A.S

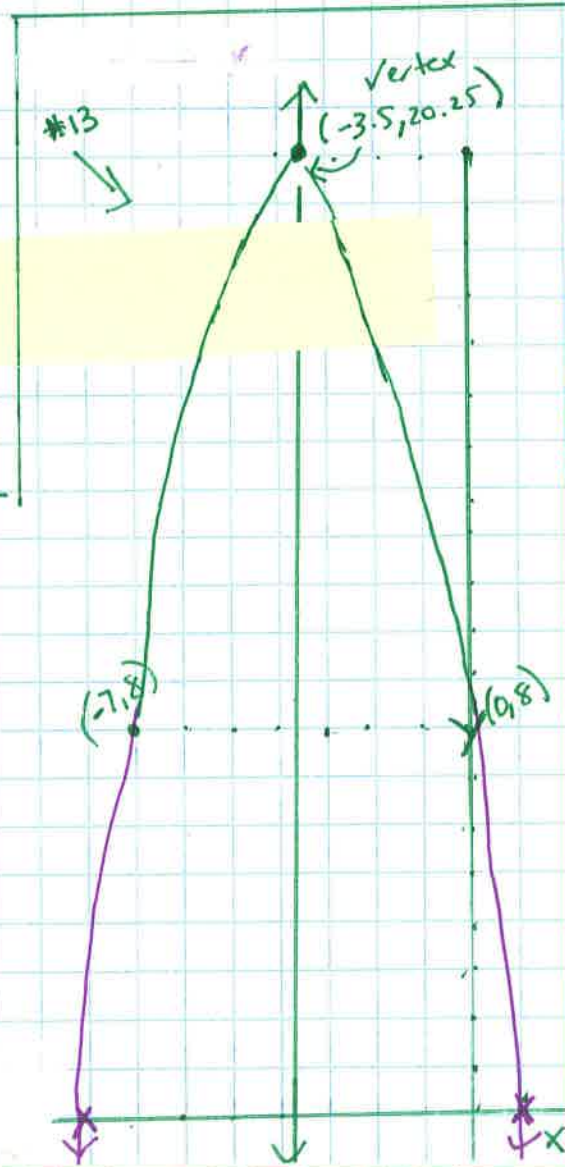
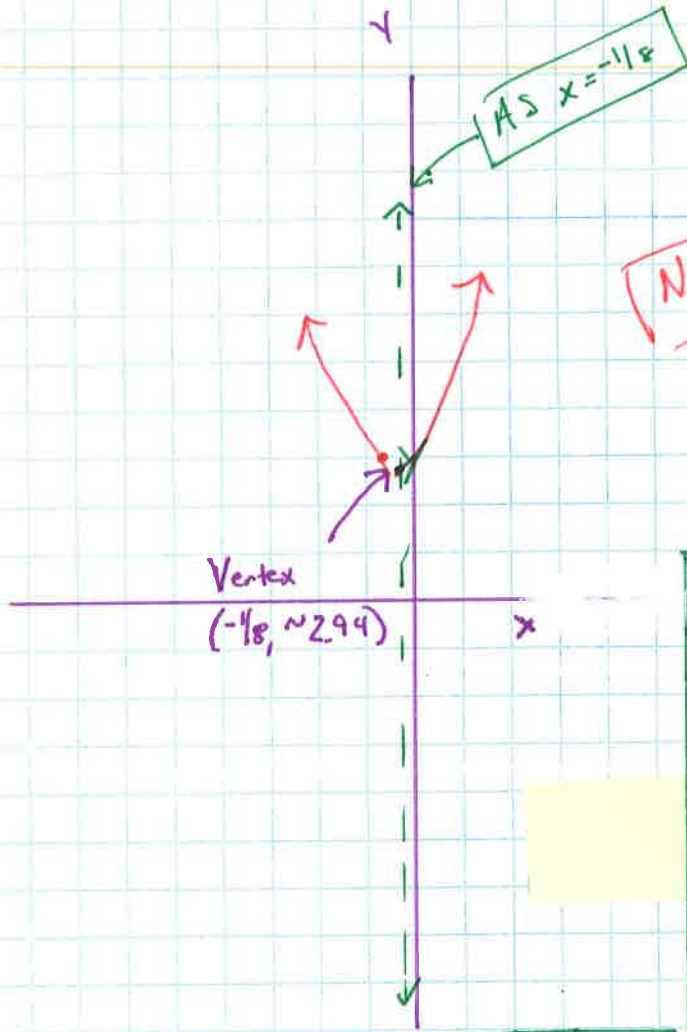
#11

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

$A=4$ $B=1$ $C=3$
 y_{int}

$$AS = \frac{-B}{2A} = \frac{-1}{2(4)} = x = -\frac{1}{8}$$

$$V(-\frac{1}{8}, \sim 2.94) \quad y = 4(-\frac{1}{8})^2 + \frac{-1}{8} + 3$$



#13 $y = -x^2 - 7x + 8$
 $a = -1$ $b = -7$ $c = 8$

$$x = \frac{7}{2(-1)} \quad x = -3.5$$

$$y = -(-3.5)^2 - 7(-3.5) + 8 = 20.25$$

V

x	-8	-7	-3.5	0	1
y	0	8	20.25	8	0

10.4 Use Square Roots to Solve Quadratic Equations pp. 652-658

EXAMPLE

Solve $5(x-6)^2 = 30$. Round the solutions to the nearest hundredth.

$5(x-6)^2 = 30$ Write original equation.

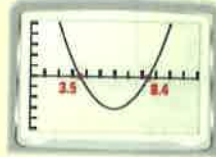
$(x-6)^2 = 6$ Divide each side by 5.

$x-6 = \pm\sqrt{6}$ Take square roots of each side.

$x = 6 \pm \sqrt{6}$ Add 6 to each side.

► The solutions of the equation are $6 + \sqrt{6} \approx 8.45$ and $6 - \sqrt{6} \approx 3.55$.

CHECK To check the solutions, first rewrite the equation so that 0 is on the one side as follows: $5(x-6)^2 - 30 = 0$. Then graph the related function $y = 5(x-6)^2 - 30$. The x-intercepts are about 8.4 and about 3.5. So, each solution checks.



EXERCISES

Solve the equation. Round your solutions to the nearest hundredth, if necessary.

MPLES

652-654
s. 14-19

14. $6x^2 - 54 = 0$

15. $3x^2 + 7 = 4$

16. $g^2 + 11 = 24$

17. $7n^2 + 5 = 9$

18. $2(a+7)^2 = 34$

14) $x^2 = 9$
 $x = \pm 3$

15) $\sqrt{x^2} = \sqrt{-1}$
 $x = \text{NO SOLUTION}$

16) $\sqrt{x^2} = \sqrt{13}$
 $x \approx \pm 3.61$

17) $n^2 = 4/7$
 $n \approx \pm .76$

18) $\sqrt{(a+7)^2} = \sqrt{17}$
 $a+7 = \pm \sqrt{17}$
 $a = -7 \pm \sqrt{17}$

$a = -7 + \sqrt{17}$
 $a = -7 - \sqrt{17}$

$a \approx -2.98$
 $a \approx -11.12$

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10.5 Solve Quadratic Equations by Completing the Square pp. 663-668

EXERCISES

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

20. $x^2 - 14x = 51$

21. $2a^2 + 12a - 4 = 0$

When completing the square this is $C=49$.

20) $x^2 - 14x + 49 = 51 + 49$

21) $A^2 + 6A - 2 = 0$

$\sqrt{(x-7)^2} = \sqrt{100}$

$x-7 = \pm 10$

$x = 7 \pm 10$

$x = 7 + 10$

$x = 7 - 10$

$x = 17$

$x = -3$

$A^2 + 6A - 2 = 0$
 $+2 +2$
 $A^2 + 6A + 9 = 2 + 9$

$\sqrt{(A+3)^2} = \sqrt{11}$

$A+3 = \pm \sqrt{11}$

$A = -3 \pm \sqrt{11}$

$A \approx .32, -6.32$

Example:
find C for
 $x^2 - 9x + C$

$C = -\frac{9}{2} = (-4.5)^2$

$C = 20.25$

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EXERCISES

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

24. $x^2 - 2x - 15 = 0$

25. $2m^2 + 7m - 3 = 0$

26. $-w^2 + 5w = 3$

27. $5n^2 - 7n = -1$

②④ $A=1$ $B=-2$ $C=-15$

$$X = \frac{2 \pm \sqrt{4 - 4(1)(-15)}}{2(1)}$$

$$X = \frac{2 \pm \sqrt{64}}{2} = \frac{2 \pm 8}{2}$$

$X = \frac{2+8}{2}$ $X = \frac{2-8}{2}$

$X = 5$ $X = -3$

②⑤ $A=2$ $B=7$ $C=-3$

$$X = \frac{-7 \pm \sqrt{49 - 4(2)(-3)}}{2(2)}$$

$$X = \frac{-7 \pm \sqrt{73}}{4}$$

$X = \frac{-7 + \sqrt{73}}{4}$ $X = \frac{-7 - \sqrt{73}}{4}$

* ROUND AT END
2 DECIMALS

$X \approx 0.39$ $X = -3.89$

②⑥ $-w^2 + 5w = 3$ 0

-3 $-B$

$$-w^2 + 5w - 3 = 0$$

$a = -1$ $b = 5$ $c = -3$

$$X = \frac{-5 \pm \sqrt{25 - 4(-1)(-3)}}{2(-1)}$$

$$X = \frac{-5 \pm \sqrt{13}}{-2}$$

$X = \frac{-5 + \sqrt{13}}{-2}$ $X = \frac{-5 - \sqrt{13}}{-2}$

$X \approx 0.697$

↓ Round 2 Decimals

$X \approx 0.70$

②⑦ $5N^2 - 7N = -1$

$+1$ $+C$

$$5N^2 - 7N + 1 = 0$$

$A=5$ $B=-7$ $C=1$

$$X = \frac{7 \pm \sqrt{49 - 4(5)(1)}}{2(5)}$$

$$X = \frac{7 \pm \sqrt{29}}{10}$$

$X = \frac{7 + \sqrt{29}}{10}$ $X = \frac{7 - \sqrt{29}}{10}$

$X \approx 1.24$ $X = .16$

10.7 Interpret the Discriminant

pp. 678-683

EXAMPLE

Equation $ax^2 + bx + c = 0$	Discriminant $b^2 - 4ac$	Number of solutions
a. $-16x^2 + 8x - 1 = 0$	$8^2 - 4(-16)(-1) = 0$	One solution
b. $4x^2 - 5x + 2 = 0$	$(-5)^2 - 4(4)(2) = -7$	No solution
c. $x^2 + 3x = 0$	$3^2 - 4(1)(0) = 9$	Two solutions

$$D = B^2 - 4AC$$

EXERCISES

Tell whether the equation has *two solutions*, *one solution*, or *no solution*.

PLES
2
678-679

31. $x^2 - 2x + 2 = 0$

32. $4g^2 + 12g + 9 = 0$

33. $5w^2 - 4w - 1 = 0$

$$D = -4$$

$$\text{No SOL}$$

$$D = 0$$

$$1 \text{ SOL}$$

$$D = 36$$

$$2 \text{ SOL'S}$$

$$D = (-2)^2 - 4(1)(2)$$

$$\underline{\underline{D = -4}}$$

$$D = 12^2 - 4(4)(9)$$

$$\underline{\underline{D = 0}}$$

$$D = (-4)^2 - 4(5)(-1)$$

$$D = 16 + 20$$

$$\underline{\underline{D = 36}}$$