

1.1 and 1.2 Quadratic Functions HW.

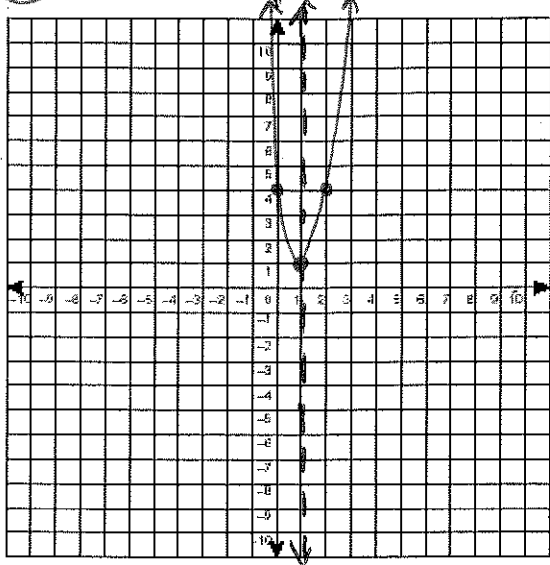
Name: Key Algebra II H

Before you attack a problem that contains a quadratic function, observe which form (standard, vertex, or intercept) the function is in. Each form has its own benefits!

- Graph the following quadratics. Pay attention to extra instructions for each that tell you to label important parts of the parabola.

Pg. 6 # 22, 25 Pg. 7 #48 Pg.15 # 3, 10, 16

22 $y = 3x^2 - 6x + 4$

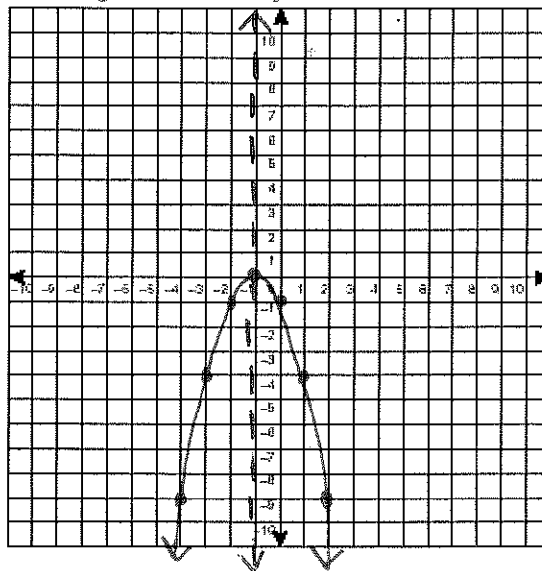


$x = \frac{-(-6)}{2(3)}$
 $= \frac{6}{6}$
 $x = 1$

 $y = 3(1)^2 - 6(1) + 4$
 $y = 3(1) - 6 + 4$
 $3 - 6 + 4$
 $-3 + 4$
 1

 vertex
 $(1, 1)$
 $a = 3$
 vertical stretch by 3

25 $g(x) = -x^2 - 2x - 1$

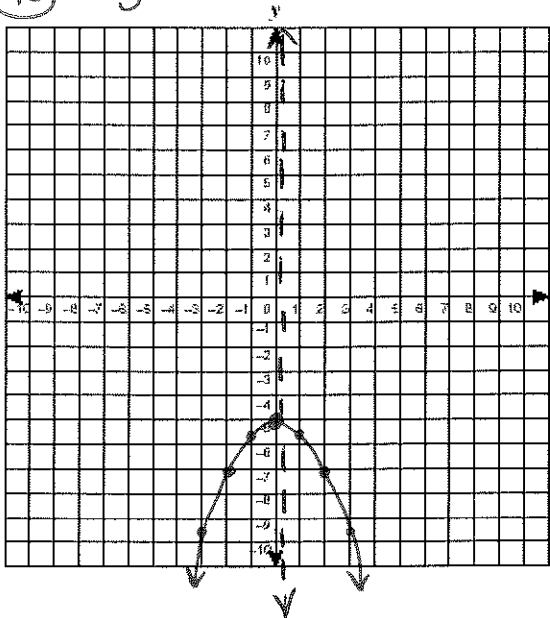


$x = \frac{-(-2)}{2(-1)}$
 $= \frac{2}{-2}$
 $x = -1$

 $y = -(-1)^2 - 2(-1) - 1$
 $y = -1 + 2 - 1$
 $= 1 - 1$
 $y = 0$

 vertex
 $(-1, 0)$

48 $g(x) = -.5x^2 - 5$

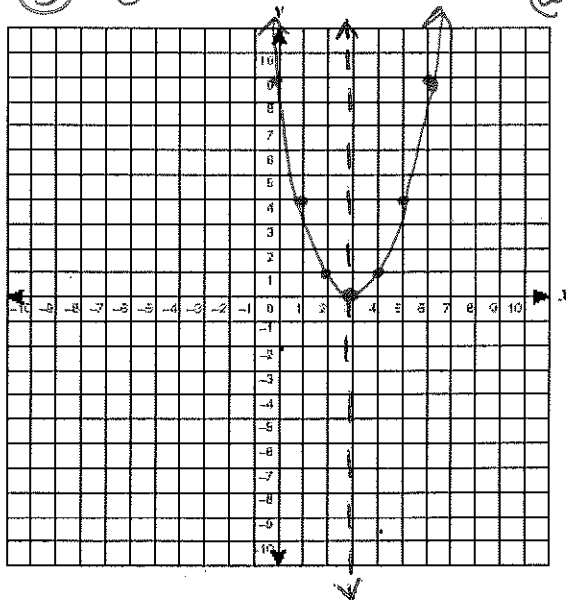


$b = 0$
 $x = \frac{-0}{2(-.5)} = 0$
 $x = 0$
 $g(0) = -.5(0) - 5$
 $= -5$

 vertex
 $(0, -5)$

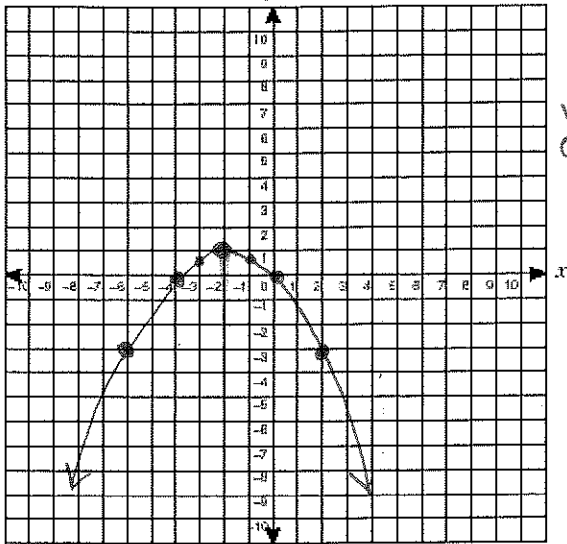
 $a = -\frac{1}{2}$
 vertical compress by factor $\frac{1}{2}$

3 $y = (x-3)^2 + 0$



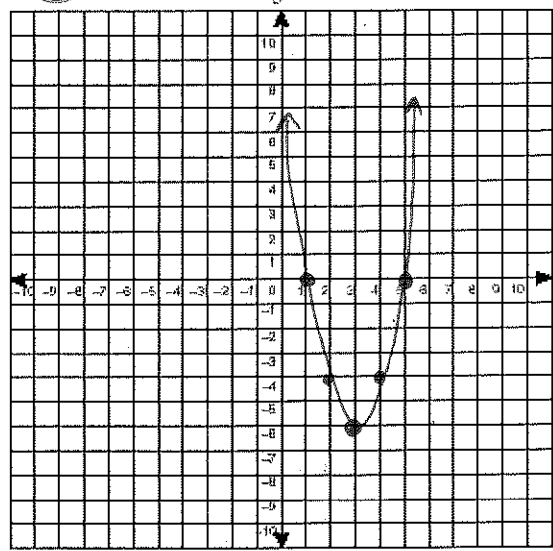
vertex @ $(3, 0)$

⑩ $y = -\frac{1}{4}(x+2)^2 + 1$



vertex
 $(-2, 1)$
 vertical
 compress
 by
 factor
 $\frac{1}{4}$

⑪ $f(x) = 2(x-5)(x-1)$



$x = \frac{5+1}{2}$
 $x = \frac{6}{2}$
 $x = 3$
 $2(3-5)(3-1)$
 $2(-2)(2)$
 -8
 vertical
 stretch
 by factor
 2

- On your own paper, now see if you can answer some questions in general about quadratics. You will need to apply what we discussed in our notes. Again, think about what form you have as each form has its own benefits. You should not graph the equations to answer these questions.

Pg. 6-7 #2, 19, 20, 33, 35, 39, 40, 44-46, 53

Pg. 15-16 #2, 23, 27, 30, 35, 38, 41, 49

- Can you understand the forms of quadratics in real world situations? You should not have to graph the equations to answer these questions.

Pg. 8 (55-59) Pg. 16 (51-53, 55)

Pg. 6-7

(2) If $a < 0 \rightarrow$ Has Maximum Value
If $a > 0 \rightarrow$ Has Minimum Value

(19) -3

(20) -7

(33) -1 Max Value

(35) -1 Min Value

(39) D

(40) C

(44) C

(45) A

(46) B

(53) $x = -1$ is A.O.S.
halfway between
2 and -4 .

Pg. 15-16

(2) $x = \frac{p+q}{2}$ then substitute that x into equation to get y .

(23) correction $p = 2$ and $q = -3$

(27) $y = -3x^2 + 18x - 24$

(30) $g(x) = -x^2 - 12x - 26$

(35) Minimum: 130

(38) Maximum: 243

(41) Maximum: 211.25

(49) $f(x) > 0 : (-1, 5)$

$f(x) < 0 : (-\infty, -1) \cup (5, \infty)$

Pg. 8

(55) Raise price by 75¢
to get Max Revenue
of \$4900

(56) Decrease price by \$20
to get Max Revenue
of \$22500/month.

(57) $y = \underline{10 \text{ ft.}}$ ($x = 2100$)
 $(x = 3.25)$

(58) $y \approx \underline{2.1 \text{ ft}}$

(59) a) $P(x) = (20-x)(150+10x) - 1500$

c) Reduce price by \$2.50
Increase profit to
\$1562.50/wk.

Pg. 16

(51) a) 6 ft.

b) $\approx 28 \text{ ft.}$

(52) 105m

(53) a) 160 ft.

b) $\approx 1.5 \text{ ft.}$

(55) a) $\approx 14\%$, 55.5 cm^3
b) $\approx 13.6\%$, 44.1 cm^3