Algebra 2

Topic 4 // Graphing Quadratics B

N: Key

D:

P: 1 2 3 4 5 6

Standards: 10.0

Holt: 5-3 Graphing and Factoring p. 333

1) Answer the following questions for this quadratic: a=1 b=6 c=-7

$$y = x^2 + 6x - 7$$

a) Does it open up or down? up

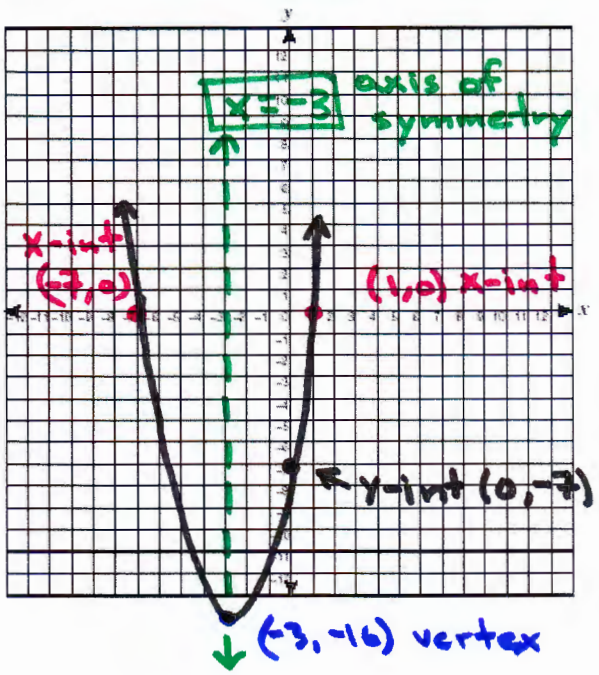
b) Vertex (-3, -16)

c) Y-Intercept (0, -7)

d) X-Intercepts (or Roots or Zeroes) x=-7 ; x=1

e) Axis of Symmetry x=-3

f) Graph



(b) $x = \frac{-b}{2a} = \frac{-6}{2(1)} = \frac{-6}{2} = -3$ → (-3, -16)

$y = (-3)^2 + 6(-3) - 7$

$= 9 - 18 - 7 = -16$ → (-3, -16)

(c) $x^2 + 6x - 7 = 0$

$(x+7)(x-1) = 0$

$x + 7 = 0$ → $x = -7$

$x - 1 = 0$ → $x = 1$

2) Answer the following questions for this quadratic: a=1 b=2 c=-3

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

a) Does it open up or down? up

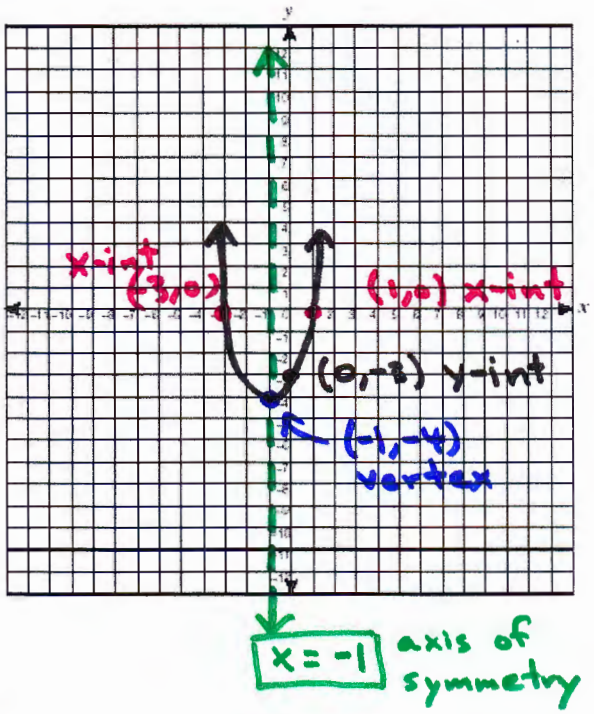
b) Vertex (-1, -4)

c) Y-Intercept (0, -3)

d) X-Intercepts (or Roots or Zeroes) x=-3, x=1

e) Axis of Symmetry x=-1

f) Graph



(b) $x = \frac{-b}{2a} = \frac{-2}{2(1)} = \frac{-2}{2} = -1$ → (-1, -4)

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

$= 1 - 2 - 3 = -4$ → (-1, -4)

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

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

$x + 3 = 0$ → $x = -3$

$x - 1 = 0$ → $x = 1$

3) Answer the following questions for this quadratic: a=-1 b=6 c=-9

$$y = -x^2 + 6x - 9$$

a) Does it open up or down? down

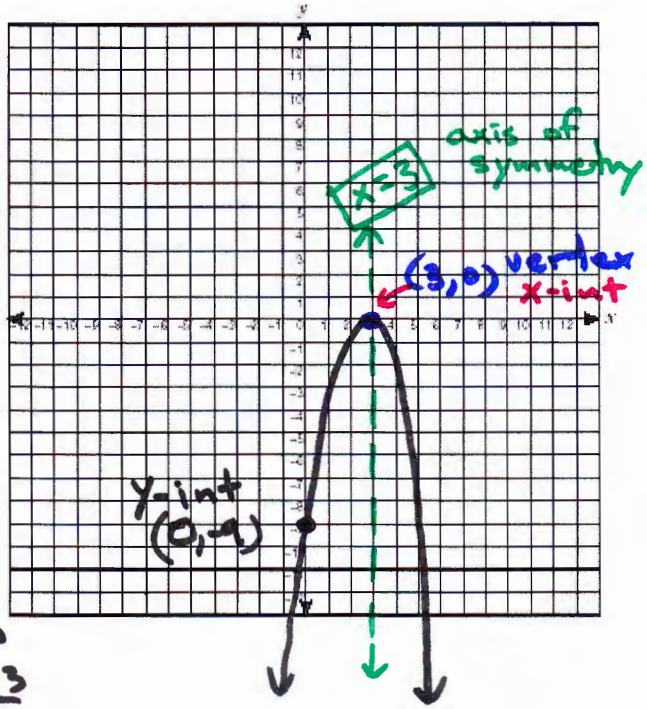
b) Vertex (3,0)

c) Y-Intercept (0,-9)

d) X-Intercepts (or Roots or Zeroes) x=3

e) Axis of Symmetry x=3

f) Graph



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

$y = -(3)^2 + 6(3) - 9$

$= -9 + 18 - 9 = 0$ → (3,0)

(d) $-x^2 + 6x - 9 = 0$

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

$-x + 3 = 0$ → $-x = -3$ → $x = 3$

$x - 3 = 0$ → $x = 3$

4) Answer the following questions for this quadratic: a=1 b=-8 c=-9

$$y = x^2 - 8x - 9$$

a) Does it open up or down? up

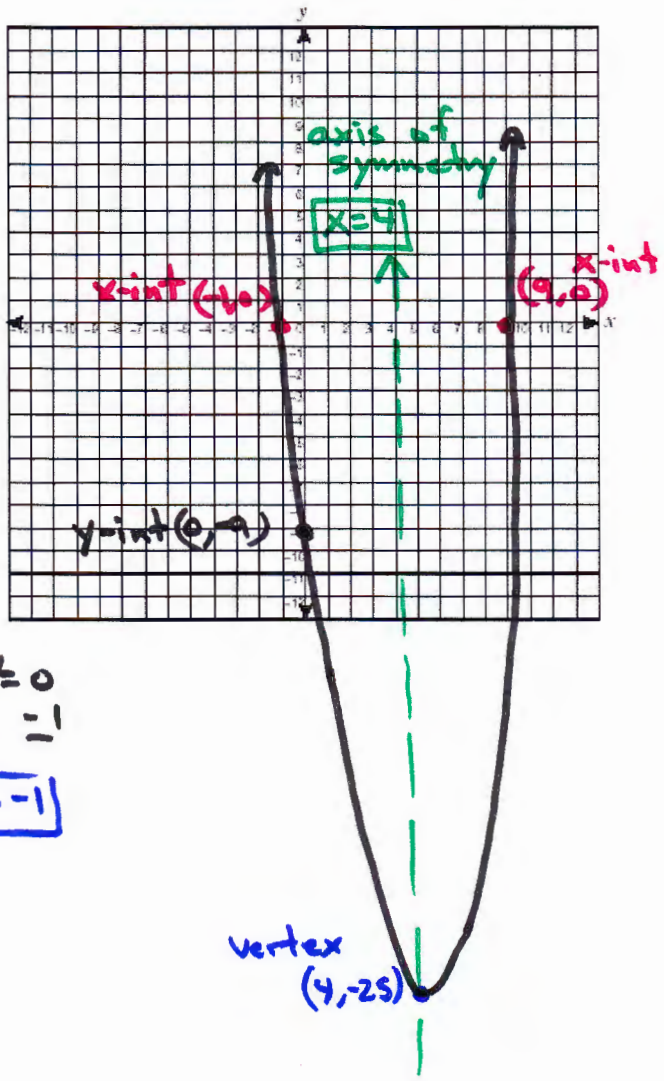
b) Vertex (4,-25)

c) Y-Intercept (0,-9)

d) X-Intercepts (or Roots or Zeroes) x=9, x=-1

e) Axis of Symmetry x=4

f) Graph



(b) $x = \frac{-b}{2a} = \frac{-8}{2(1)} = \frac{8}{2} = 4$

$y = (4)^2 - 8(4) - 9$

$= 16 - 32 - 9 = -25$ → (4,-25)

(d) $x^2 - 8x - 9 = 0$

$(x-9)(x+1) = 0$

$x - 9 = 0$ → $x = 9$

$x + 1 = 0$ → $x = -1$