Quadratics Quiz

1. Complete the following chart:

Characteristics	$y = 2(x-2)^2 + 3$	$y = -1(x+4)^2 - 5$	$y = \frac{1}{2}(x+1)^2 + 2$
a) direction of opening	up	down	up
b) does it have a max/min point	min	max	min
c) max/min value	y = 3	y = -5	y = 2
d) shape (normal, narrower, wider)	narrower	normal	wider
e) axis of symmetry	x = 2	x = -4	x = -1
f) coordinates of the vertex	(2, 3)	(-4, -5)	(-1, 2)
g) domain of the function	$\Re$	$\Re$	$\Re$
h) range of the function	$y \geq 3$	$y \leq -5$	$y \geq 2$
i) table of values	x: −1, 0, 2, 4, 5 y: 21, 11, 3, 11, 21	x: −9, −8, −4, 0, 1 y: −30, −21, −5, −21, −30	x: −3, −2, −1, 0, 1 y: 4, $\frac{5}{2}$, 2, $\frac{5}{2}$, 4

2. Complete the trinomial square on the following quadratic function converting to form: $y = a(x-p)^2 + q$

$y = 3x^2 - 5x + 1$

$y - 1 = 3\left(x^2 - \frac{5}{3}x\right)$

$y - 1 + \frac{25}{12} = 3\left(x^2 - \frac{5}{3}x + \frac{25}{36}\right)$

$y + \frac{-1*12 + 25}{12} = 3\left(x - \frac{5}{6}\right)^2$

$y + \frac{13}{12} = 3\left(x - \frac{5}{6}\right)^2$

$y = 3\left(x - \frac{5}{6}\right)^2 - \frac{13}{12}$

3. Use the min/max and axis of symmetry formulas to determine the coordinates of the vertex of: $y = -4x^2 + 7x - 3$

$$\left(-\frac{b}{2a}, \frac{4ac - b^2}{4a}\right) = \left(-\frac{7}{2(-4)}, \frac{4(-4)(-3) - (7)^2}{4(-4)}\right) = \left(\frac{-7}{-8}, \frac{48 - 49}{-16}\right) = \left(\frac{7}{8}, \frac{1}{16}\right)$$