Writing Quadratic Functions in All Forms Quiz

Name KEY

Complete the chart so that every function is written in all three forms. SHOW WORK TO GET FULL CREDIT!! Each problem is worth 2 points.

Standard Form	Vertex Form	Intercept Form
$f(x) = x^2 - 8x + 12$ TO FIND THE VERTEX $x = \frac{-b}{2a} \rightarrow \frac{-(-8)}{2(1)} = \frac{8}{2} = 4$ $y = (4)^2 - 8(4) + 12$ $= 16 - 32 + 12$ $= -4$ VERTEX $(4, -4)$	COMPLETE THE SQUARE OR FIND THE VERTEX $f(x) = (x^2 - 8x __) + 12$ $f(x) + 16 = (x^2 - 8x + 16) + 12$ $f(x) + 16 = (x-4)(x-4) + 12$ $f(x) + 16 = (x-4)^2 + 12$ $-16 \quad -16$ $\boxed{f(x) = (x-4)^2 - 4}$	FACTOR TO GET INTERCEPT FORM $\boxed{y = (x-6)(x-2)}$
FOLLOW ORDER OF OPERATIONS $f(x) = -(x+4)(x+4) + 1$ $= -(x^2 + 8x + 16) + 1$ $= -x^2 - 8x - 16 + 1$ $\boxed{= -x^2 - 8x - 15}$	$f(x) = -(x + 4)^2 + 1$	FACTOR OUT NEGATIVE 1ST, THEN FACTOR COMPLETELY $y = -(x^2 + 8x + 15)$ $\boxed{y = -(x+5)(x+3)}$
MULTIPLY TO GET STANDARD FORM $f(x) = (x+7)(x-5)$ $= x^2 - 5x + 7x - 35$ $= \boxed{x^2 + 2x - 35}$	FIND VERTEX $(x = \frac{-b}{2a})$ OR COMPLETE SQUARE $y = (x^2 + 2x __) - 35$ $y + 1 = (x^2 + 2x + 1) - 35$ $y + 1 = (x+1)(x+1) - 35$ $y + 1 = (x+1)^2 - 35$ $-1 \quad -1$ $\boxed{y = (x+1)^2 - 36}$	$f(x) = (x + 7)(x - 5)$