3.4 The Role of the ZEROS of a QUADRATIC relation

Question 5 page 281 to dos...

i) state the x-intercepts
   a) factor
   b) then set each factor to y = 0 to find the zeros (roots)

ii) the equation of the axis of symmetry (remember its a vertical line)
   a) find the midpoint of the zeros
      (letter h...the x-coordinate of the vertex)
   b) the equation is the equation of a vertical line which is "x ="
   c) in this case its "x = h"

iii) the coordinates of the vertex
   a) sub the h value into the original equation to determine
      the y value (letter k...the y-coordinate of the vertex)
   b) use h and k to write your ordered pair (h,k)

iv) graph the quadratic relation
   a) first plot the zeros (x intercepts)
   b) then plot the vertex
   c) then from the vertex draw a smooth curve through one zero
   d) then repeat for the other zero
   e) use arrows on each end to show that the parabola continues
   f) then label parabola with equation

p. 28.

#5g) $y = 3(x+1)(x-3)$

i) $y = 0$ or $x - 3 = 0$

$x + 1 = 0$

$x = -1$

$x = 3$

$(-1, 0)$ and $(3, 0)$

ii) $h = \frac{(-1)+3}{2} = \frac{2}{2} = 1$

$h = 1$

the equation is $\boxed{x = 1}$

iii) $y = 3(x+1)(x-3)$

$x = 1$

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

$y = 3(2)(-2) = -12$

$y = -12 = F$

$\therefore V(1, -12)$

iv)