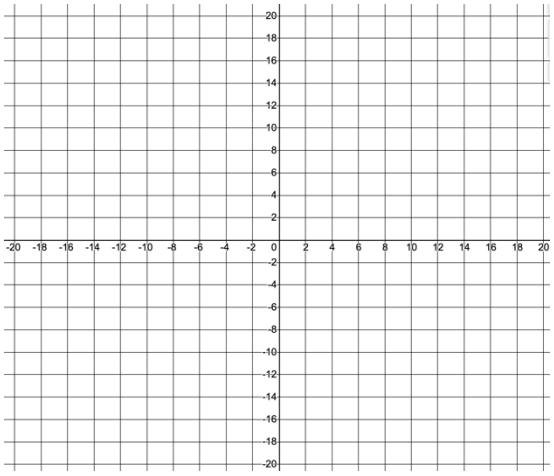
W4 –Quadratics in Factored Form Unit 4

MPM2D

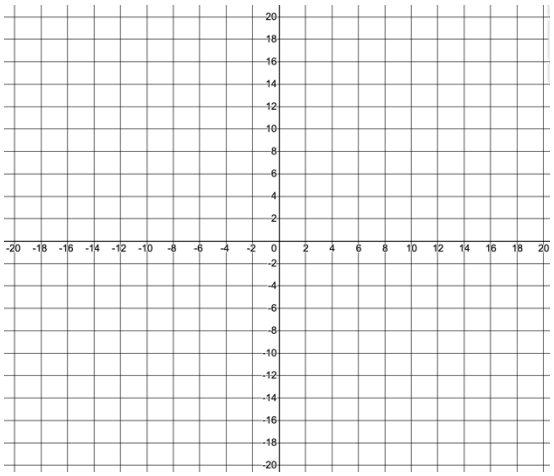
Jensen

1) Given the following quadratic equations, determine the **i)** x-intercepts using the zero product rule, **ii)** the axis of symmetry, **iii)** the vertex **iv)** graph the quadratic

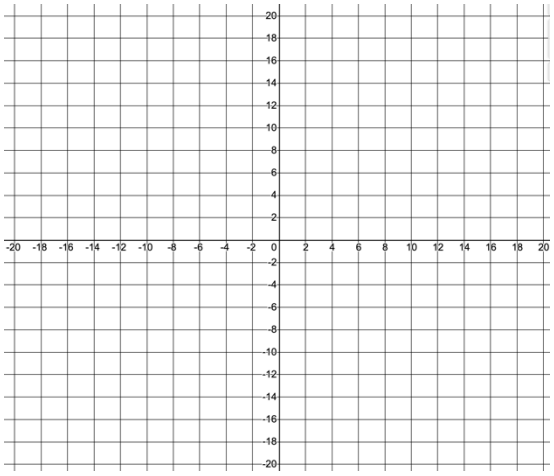
a) $y = (x + 3)(x - 1)$



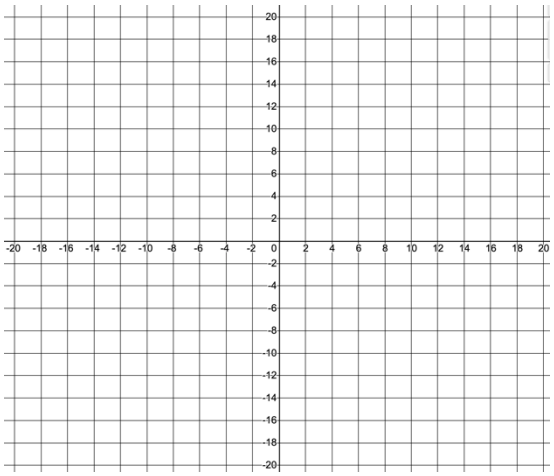
b) $y = 2(x + 4)(x - 2)$



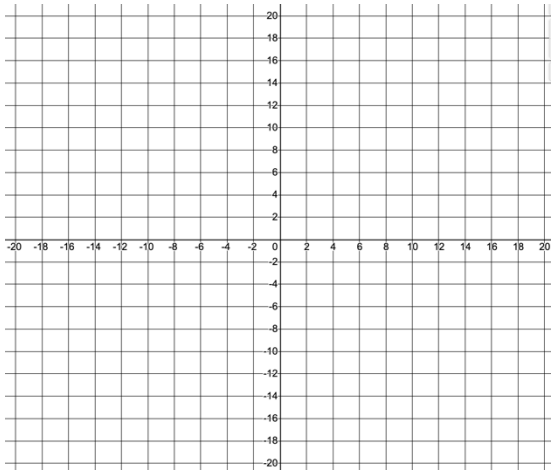
c) $y = -\frac{1}{2}(x + 2)(x - 6)$



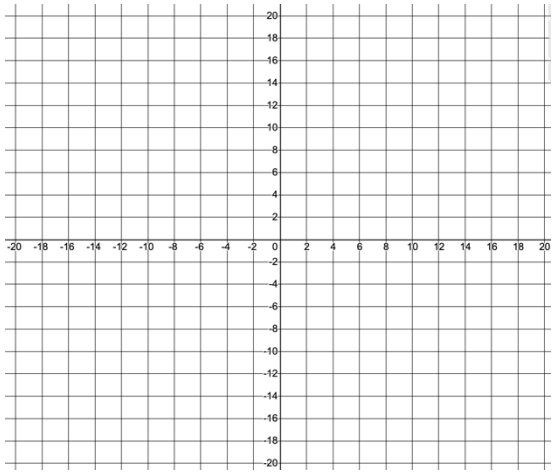
d) $y = 3x(x - 4)$



e) $y = 2x^2 + x - 10$

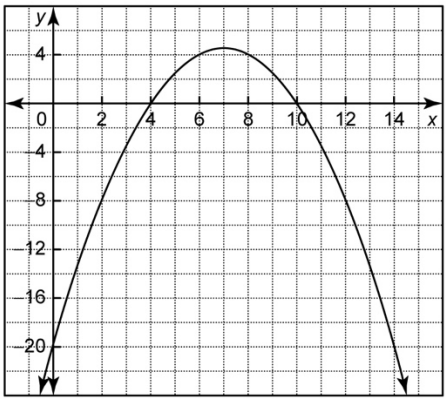


f) $y = \frac{1}{4}(4x - 3)(x - 6)$

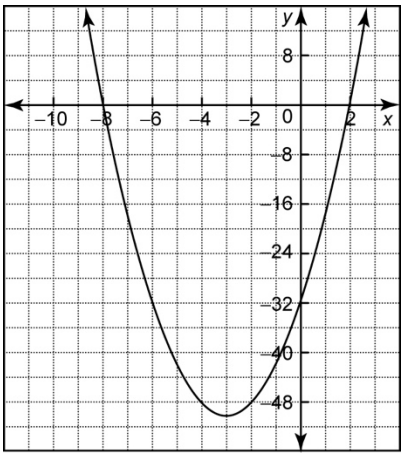


2) Determine an equation in factored form to represent each parabola shown on the graph.

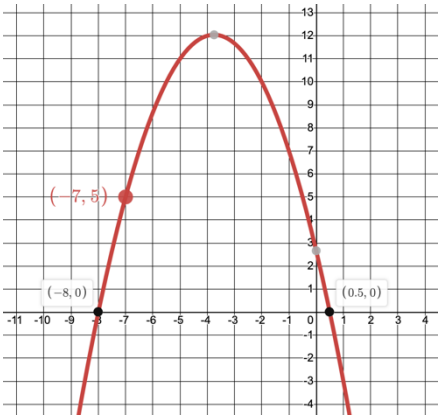
a)



b)



c)



3) A parabola has x-intercepts -2 and -8, and has vertex $(-5, -18)$. Determine the equation of this parabola in the form $y = a(x - r)(x - s)$

4) A parabola has x-intercepts 3 and 7, and has vertex $(5,2)$. Determine the equation of this parabola in factored form.

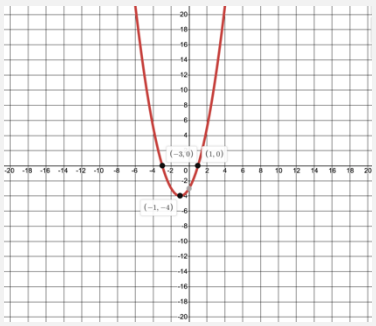
5) Determine the x-intercepts of each of the following functions.

a) $y = x^2 + 5x - 24$

b) $y = x^2 - 11x + 10$

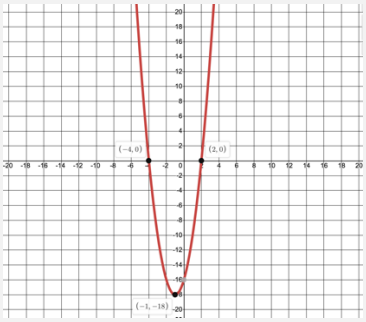
Answers

1)a)



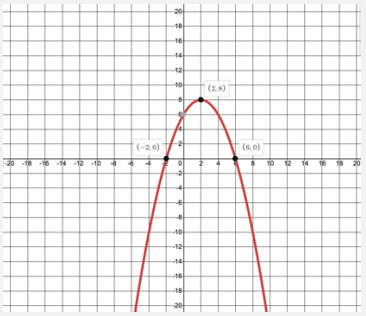
***x*-int:** $(-3,0)$, $(1,0)$
axis of symmetry: $x = -1$
vertex: $(-1,-4)$

b)



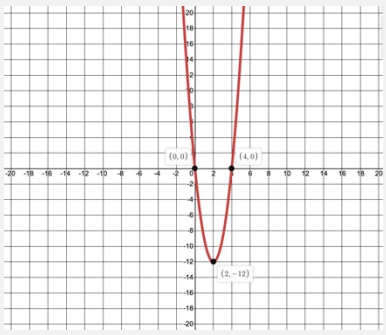
***x*-int:** $(-4,0)$, $(2,0)$
axis of symmetry: $x = -1$
vertex: $(-1,-18)$

c)



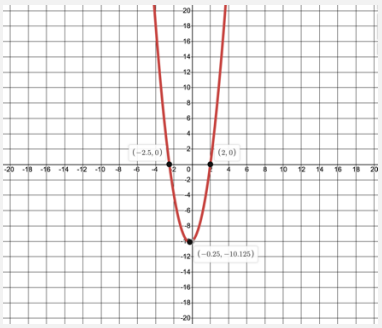
***x*-int:** $(-2,0)$, $(6,0)$
axis of symmetry: $x = 2$
vertex: $(2,8)$

d)



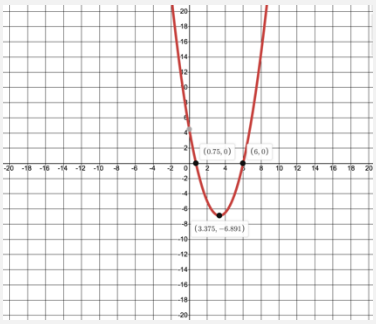
***x*-int:** $(0,0)$, $(4,0)$
axis of symmetry: $x = 2$
vertex: $(2,-12)$

e)



***x*-int:** $(-2.5,0)$, $(2,0)$
axis of symmetry: $x = -0.25$
vertex: $(-0.25,-10.125)$

f)



***x*-int:** $(0.75,0)$, $(6,0)$
axis of symmetry: $x = 3.375$
vertex: $(3.375,-6.891)$

2)a) $y = -\frac{1}{2}(x-4)(x-10)$ **b)** $y = 2(x+8)(x-2)$ **c)** $y = -\frac{1}{3}(2x-1)(x+8)$

3) $y = 2(x+2)(x+8)$

4) $y = -\frac{1}{2}(x-3)(x-7)$

5)a) $(-8,0)$ and $(3,0)$ **b)** $(10,0)$ and $(1,0)$