

Factoring & Intercept form - Graphing Parabolas

Date _____

Period _____

Solve each equation by factoring.

1) $n^2 + 6n - 7 = 0$

$(n+7)(n-1)$

$n = -7, n = 1$

3) $x^2 + 7x + 10 = 0$

$(x+2)(x+5)$

$x = -2, x = -5$

5) $x^2 = -9 + 6x$

$x^2 - 6x + 9 = 0$

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

7) $b^2 + 7b = -12$

$b^2 + 7b + 12 = 0$

$(b+4)(b+3) \rightarrow b = -4, b = -3$

9) $x^2 + x - 17 = -1 - 5x$

$x^2 + 6x - 16 = 0$

$(x+8)(x-2) \rightarrow x = -8, x = 2$

11) $p^2 - 5p - 2 = -4p$

$p^2 - p - 2 = 0$

$(p-2)(p+1) \rightarrow p = 2, p = -1$

2) $k^2 + 6k + 8 = 0$

$(k+4)(k+2)$

$k = -4, k = -2$

4) $x^2 + 2x - 48 = 0$

$(x-6)(x+8)$

$x = 6, x = -8$

6) $x^2 + 2x = 48$

$x^2 + 2x - 48 = 0$

$(x+8)(x-6)$

8) $m^2 = 49$

$m^2 - 49 = 0$

$(m+7)(m-7) \rightarrow m = -7, m = 7$

10) $-6n^2 - n + 7 = 7n + 7 - 7n^2$

$n^2 - 8n = 0$

$n(n-8) \rightarrow n = 0, n = 8$

12) $8n^2 - 5n - 16 = 7n^2 + n$

$n^2 - 6n - 16$

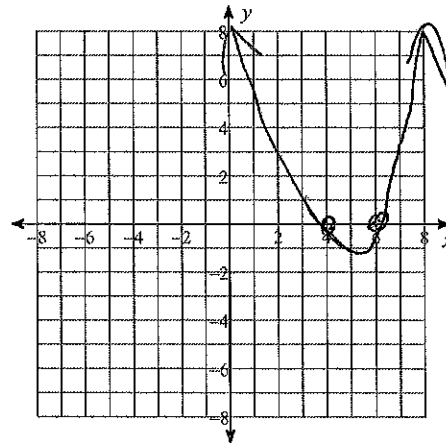
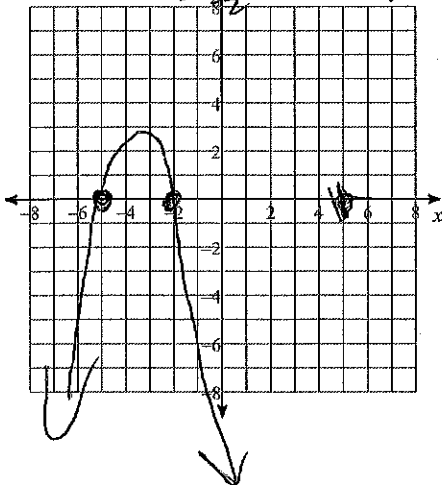
$(n-8)(n+2) \rightarrow n = 8, n = -2$

Identify the vertex, axis of symmetry, min/max value, y-intercept, and x-intercepts of each.

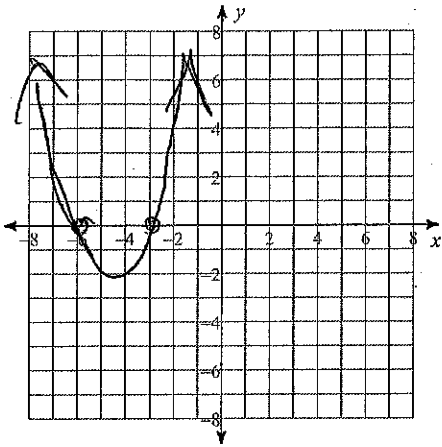
Then sketch the graph.

13) $y = -(x+5)(x+2)$
 $y\text{-int} = -(0+5)(0+2) = -10$
 $-5 \cdot 2 = -10$
 $-5 + 2 = -3.5$

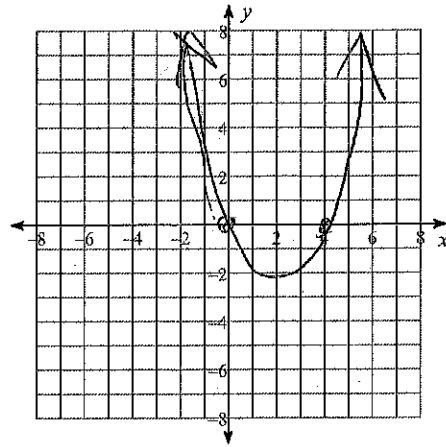
14) $y = (x-6)(x-4)$
 $y\text{-int} = (0-6)(0-4) = 24$



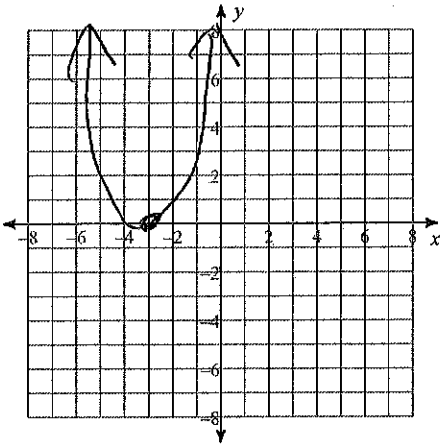
15) $y = (x + 6)(x + 3)$



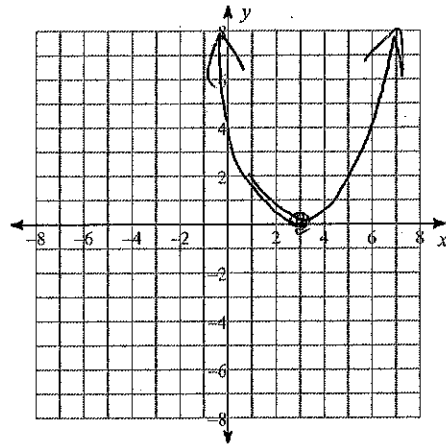
16) $y = x(x - 4)$



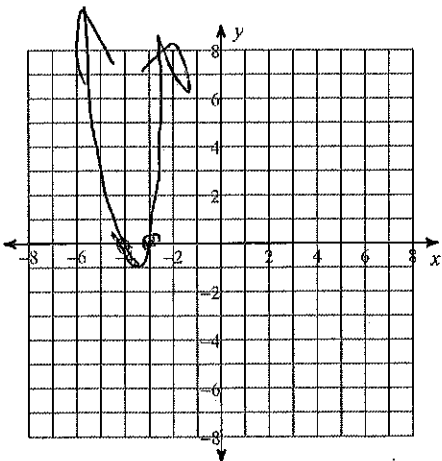
17) $y = 2(x + 3)^2$



18) $y = (x - 3)^2$



19) $y = 2(x + 4)(x + 3)$



20) $y = \frac{1}{3}(x - 2)(x + 2)$

