Pre Calculus Name_____ ID: 1

Factoring & Intercept form - Graphing Parabolas

Date_____ Period____

Solve each equation by factoring.

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

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

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

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

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

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

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

8) $m^2 = 49$

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

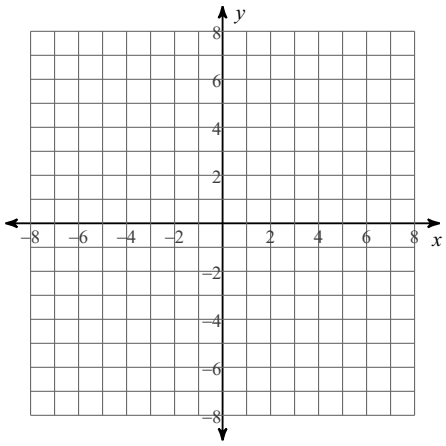
10) $-6n^2 - n + 7 = 7n + 7 - 7n^2$

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

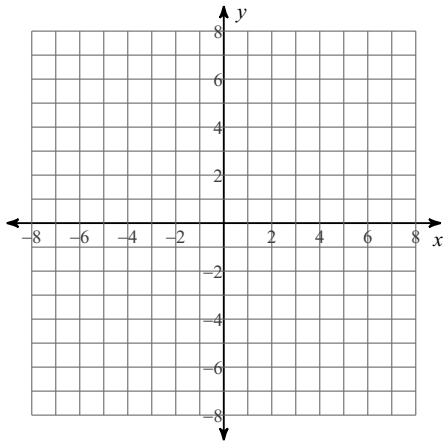
12) $8n^2 - 5n - 16 = 7n^2 + n$

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

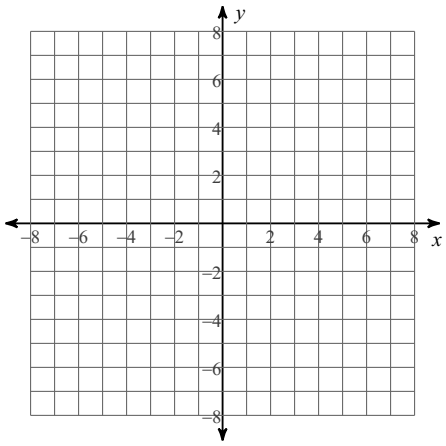
13) $y = -(x + 5)(x + 2)$



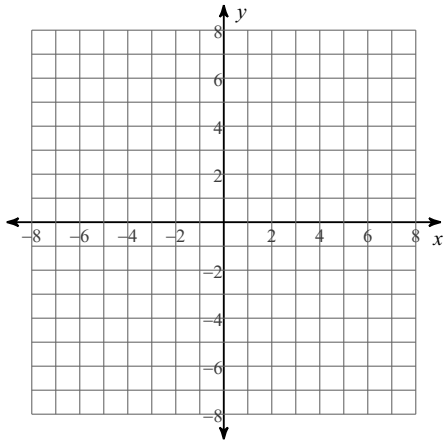
14) $y = (x - 6)(x - 4)$



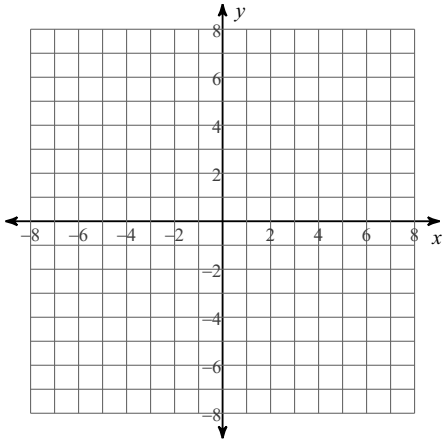
15) $y = (x + 6)(x + 3)$



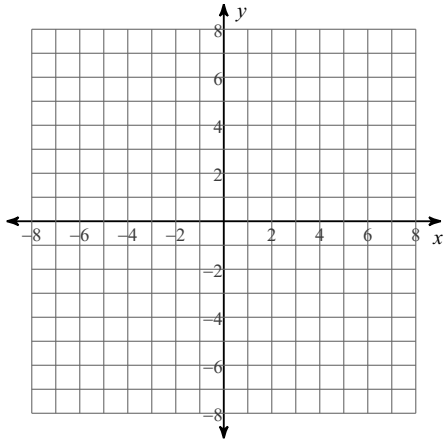
16) $y = x(x - 4)$



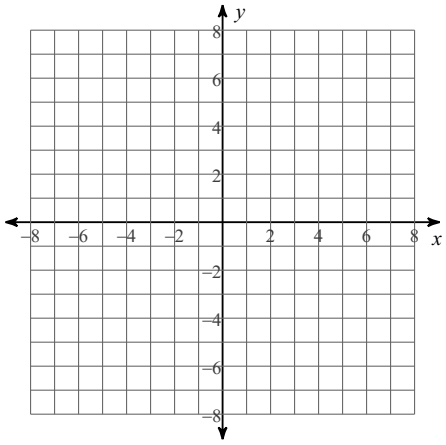
17) $y = 2(x + 3)^2$



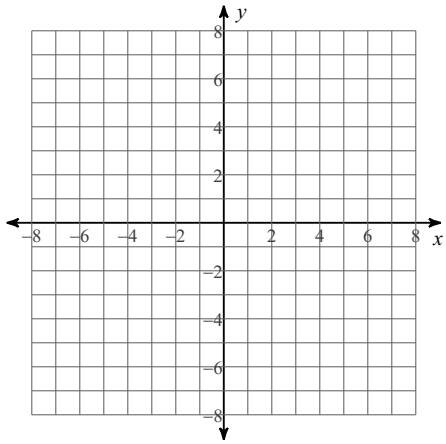
18) $y = (x - 3)^2$



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



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



Answers to Factoring & Intercept form - Graphing Parabolas (ID: 1)

1) $\{1, -7\}$

2) $\{-2, -4\}$

3) $\{-5, -2\}$

4) $\{-8, 6\}$

5) $\{3\}$

6) $\{-8, 6\}$

7) $\{-3, -4\}$

8) $\{7, -7\}$

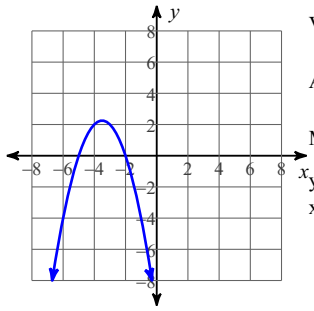
9) $\{2, -8\}$

10) $\{8, 0\}$

11) $\{2, -1\}$

12) $\{8, -2\}$

13)



Vertex: $\left(-\frac{7}{2}, \frac{9}{4}\right)$

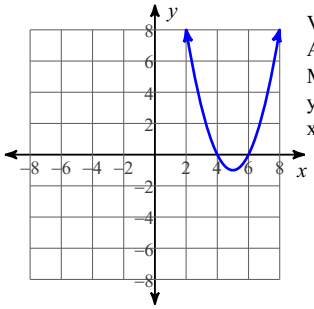
Axis of Sym.: $x = -\frac{7}{2}$

Max value = $\frac{9}{4}$

y-int: -10

x-int: -5 and -2

14)



Vertex: $(5, -1)$

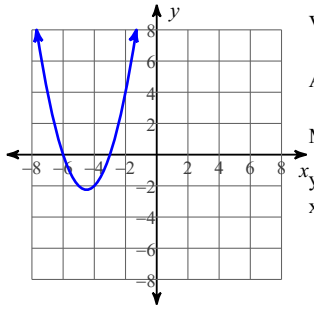
Axis of Sym.: $x = 5$

Min value = -1

y-int: 24

x-int: 6 and 4

15)



Vertex: $\left(-\frac{9}{2}, -\frac{9}{4}\right)$

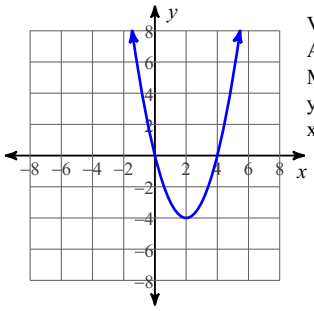
Axis of Sym.: $x = -\frac{9}{2}$

Min value = $-\frac{9}{4}$

y-int: 18

x-int: -6 and -3

16)



Vertex: $(2, -4)$

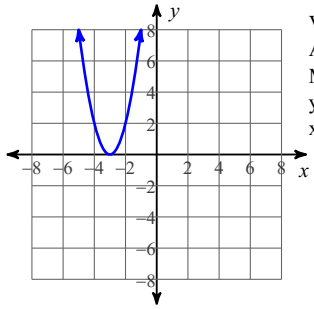
Axis of Sym.: $x = 2$

Min value = -4

y-int: 0

x-int: 0 and 4

17)



Vertex: $(-3, 0)$

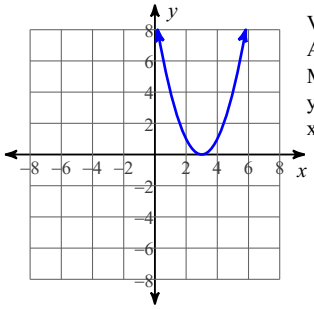
Axis of Sym.: $x = -3$

Min value = 0

y-int: 18

x-int: -3

18)



Vertex: $(3, 0)$

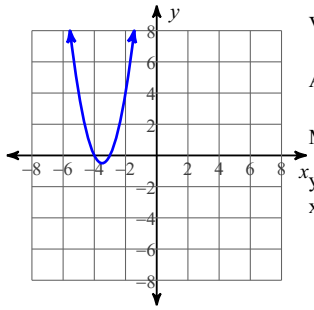
Axis of Sym.: $x = 3$

Min value = 0

y-int: 9

x-int: 3

19)



Vertex: $\left(-\frac{7}{2}, -\frac{1}{2}\right)$

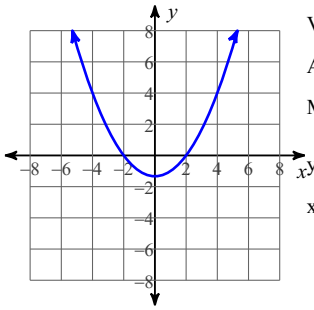
Axis of Sym.: $x = -\frac{7}{2}$

Min value = $-\frac{1}{2}$

y-int: 24

x-int: -4 and -3

20)



Vertex: $\left(0, -\frac{4}{3}\right)$

Axis of Sym.: $x = 0$

Min value = $-\frac{4}{3}$

y-int: $-\frac{4}{3}$

x-int: 2 and -2

Pre Calculus Name_____ ID: 2

Factoring & Intercept form - Graphing Parabolas

Date_____ Period____

Solve each equation by factoring.

1) $n^2 + 10n + 16 = 0$

2) $x^2 - 14x + 48 = 0$

3) $x^2 + 9x + 8 = 0$

4) $n^2 - 5n - 24 = 0$

5) $n^2 + 9n = -8$

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

7) $m^2 - 8m = -15$

8) $a^2 + 10a = -21$

9) $2n^2 - 11n + 28 = n^2$

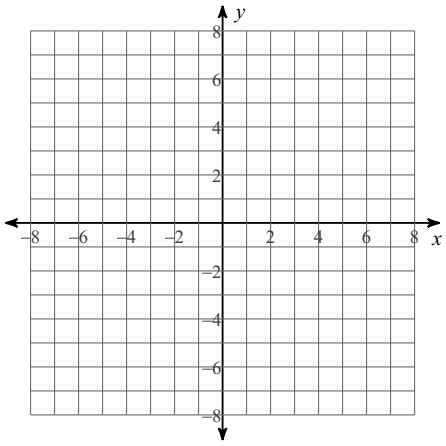
10) $b^2 + 2b - 43 = -1 + 3b$

11) $r^2 - 31 = 1 - 4r$

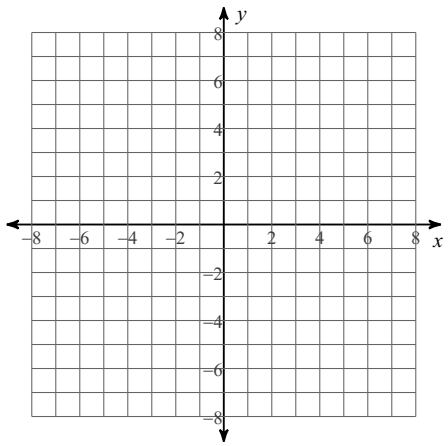
12) $7b^2 = 6b^2 + 49$

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

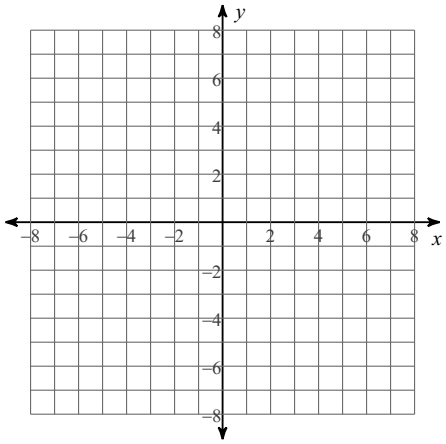
13) $y = (x - 3)(x - 2)$



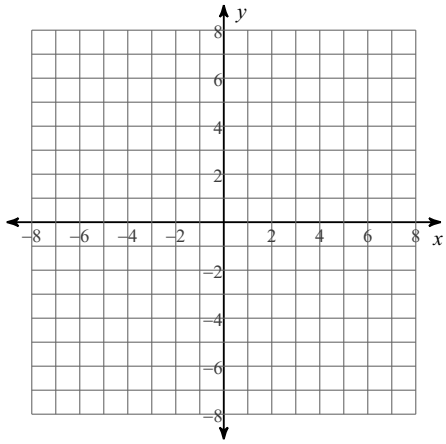
14) $y = -\frac{1}{2}x(x + 3)$



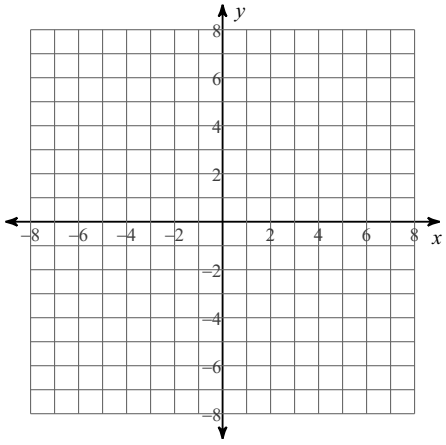
15) $y = (x - 5)(x - 1)$



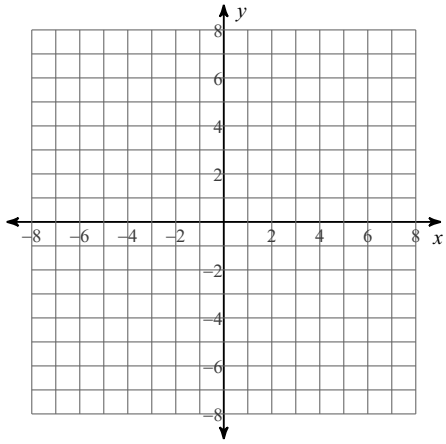
16) $y = -(x - 6)(x - 2)$



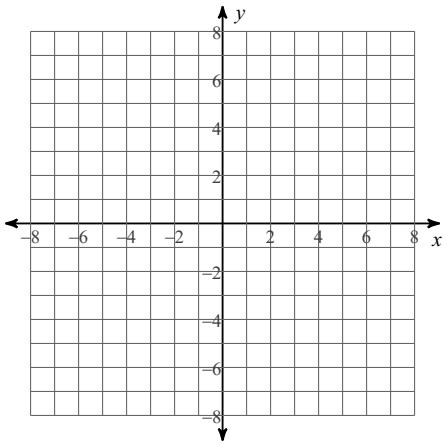
17) $y = -\frac{1}{4}(x - 6)(x + 2)$



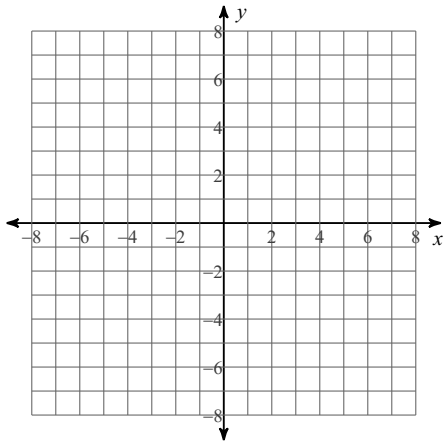
18) $y = \frac{1}{2}x(x - 7)$



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



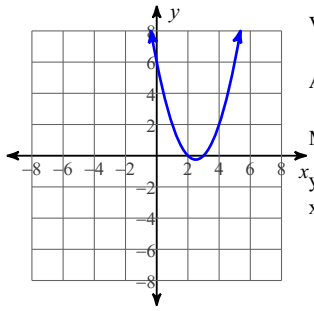
20) $y = -x(x - 3)$



Answers to Factoring & Intercept form - Graphing Parabolas (ID: 2)

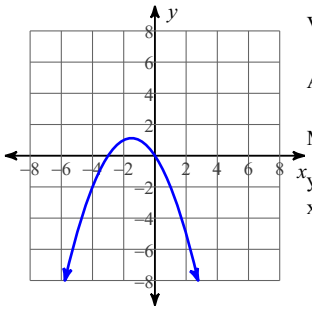
1) $\{-2, -8\}$
2) $\{8, 6\}$
3) $\{-1, -8\}$
4) $\{8, -3\}$
5) $\{-1, -8\}$
6) $\{-7, 0\}$
7) $\{5, 3\}$
8) $\{-7, -3\}$
9) $\{4, 7\}$
10) $\{-6, 7\}$
11) $\{4, -8\}$
12) $\{-7, 7\}$

13)



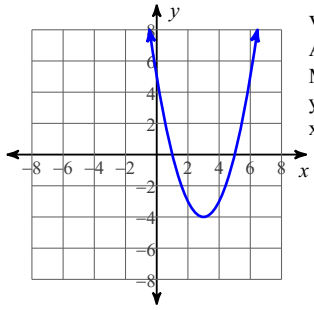
Vertex: $\left(\frac{5}{2}, -\frac{1}{4}\right)$
Axis of Sym.: $x = \frac{5}{2}$
Min value = $-\frac{1}{4}$
y-int: 6
x-int: 3 and 2

14)



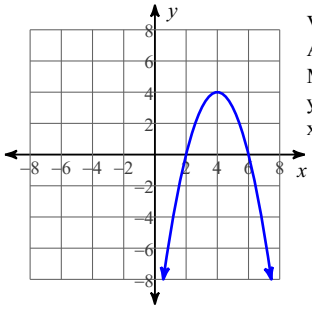
Vertex: $\left(-\frac{3}{2}, \frac{9}{8}\right)$
Axis of Sym.: $x = -\frac{3}{2}$
Max value = $\frac{9}{8}$
y-int: 0
x-int: 0 and –3

15)



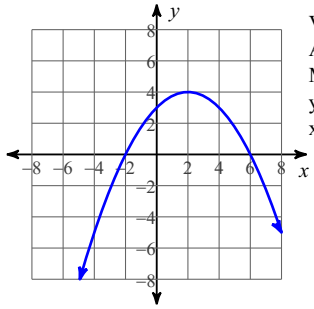
Vertex: $(3, -4)$
Axis of Sym.: $x = 3$
Min value = –4
y-int: 5
x-int: 5 and 1

16)



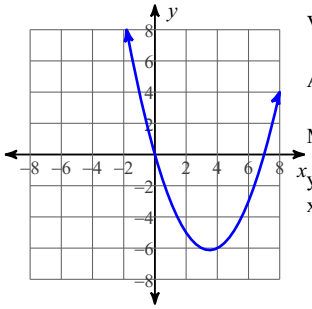
Vertex: $(4, 4)$
Axis of Sym.: $x = 4$
Max value = 4
y-int: –12
x-int: 6 and 2

17)



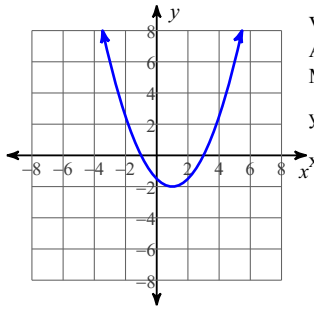
Vertex: $(2, 4)$
Axis of Sym.: $x = 2$
Max value = 4
y-int: 3
x-int: 6 and –2

18)



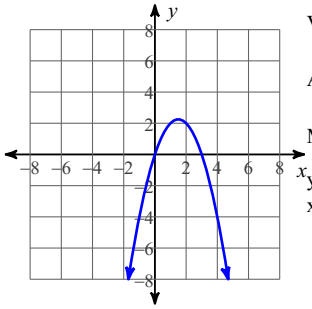
Vertex: $\left(\frac{7}{2}, -\frac{49}{8}\right)$
Axis of Sym.: $x = \frac{7}{2}$
Min value = $-\frac{49}{8}$
y-int: 0
x-int: 0 and 7

19)



Vertex: $(1, -2)$
Axis of Sym.: $x = 1$
Min value = –2
y-int: $-\frac{3}{2}$
x-int: 3 and –1

20)



Vertex: $\left(\frac{3}{2}, \frac{9}{4}\right)$
Axis of Sym.: $x = \frac{3}{2}$
Max value = $\frac{9}{4}$
y-int: 0
x-int: 0 and 3