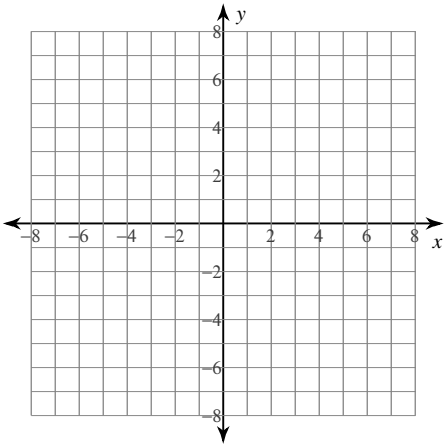
Algebra 2/Trig Name_____

10.2 B Parabolas

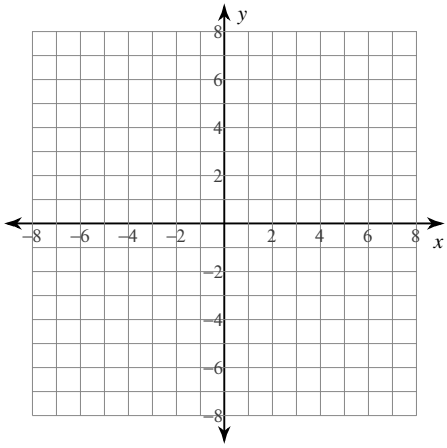
Date_____ Period____

Identify the vertex, focus, axis of symmetry, and directrix of each. Then sketch the graph.

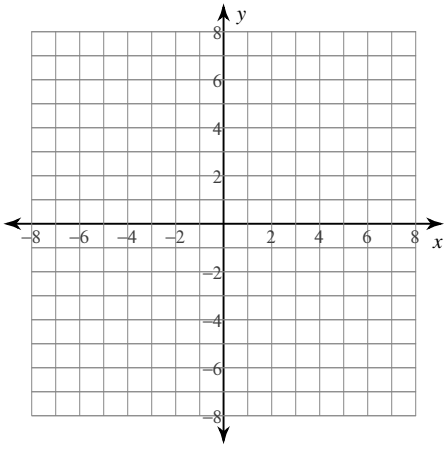
1) $-(y-3)=(x+5)^2$



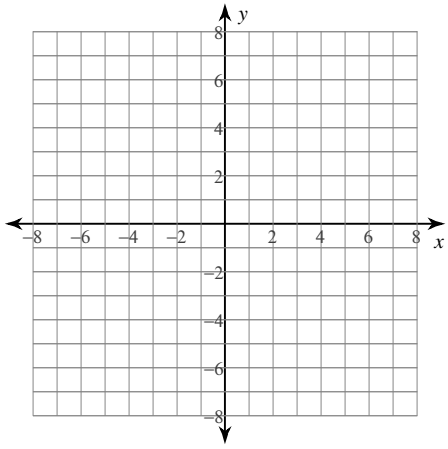
2) $-(x-3)=(y-5)^2$



3) $4(x+6)=(y+6)^2$



4) $y+2=(x-5)^2$



Identify the vertex, focus, axis of symmetry, and directrix of each.

5) $y = -x^2 - 6x - 13$

6) $x = 16y^2 + 32y + 26$

7) $y = 2x^2 + 8x - 2$

8) $x = -2y^2 + 20y - 57$

Use the information provided to write the transformational form equation of each parabola.

9) Vertex: $(3, 4)$, Focus: $(3, 3)$

10) Vertex: $(-2, 9)$, Focus: $(-2, 10)$

11) Vertex: $(-9, -1)$, Directrix: $x = -10$

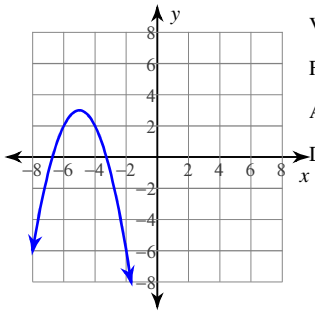
12) Vertex: $(-9, -9)$, Directrix: $x = -10$

13) Focus: $(6, -7)$, Directrix: $x = 4$

14) Focus: $(4, -5)$, Directrix: $y = -15$

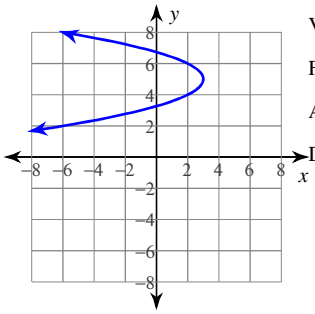
Answers to 10.2 B Parabolas (ID: 1)

1)



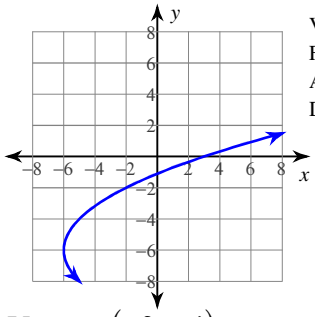
Vertex: $(-5, 3)$
Focus: $\left(-5, \frac{11}{4}\right)$
Axis of Sym.: $x = -5$
Directrix: $y = \frac{13}{4}$

2)



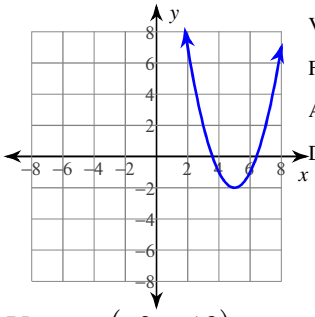
Vertex: $(3, 5)$
Focus: $\left(\frac{11}{4}, 5\right)$
Axis of Sym.: $y = 5$
Directrix: $x = \frac{13}{4}$

3)



Vertex: $(-6, -6)$
Focus: $(-5, -6)$
Axis of Sym.: $y = -6$
Directrix: $x = -7$

4)



Vertex: $(5, -2)$
Focus: $\left(5, -\frac{7}{4}\right)$
Axis of Sym.: $x = 5$
Directrix: $y = -\frac{9}{4}$

5) Vertex: $(-3, -4)$
Focus: $\left(-3, -\frac{17}{4}\right)$
Axis of Sym.: $x = -3$
Directrix: $y = -\frac{15}{4}$

6) Vertex: $(10, -1)$
Focus: $\left(\frac{641}{64}, -1\right)$
Axis of Sym.: $y = -1$
Directrix: $x = \frac{639}{64}$

7) Vertex: $(-2, -10)$
Focus: $\left(-2, -\frac{79}{8}\right)$
Axis of Sym.: $x = -2$
Directrix: $y = -\frac{81}{8}$

8) Vertex: $(-7, 5)$
Focus: $\left(-\frac{57}{8}, 5\right)$
Axis of Sym.: $y = 5$
Directrix: $x = -\frac{55}{8}$

9) $-4(y-4) = (x-3)^2$

10) $4(y-9) = (x+2)^2$

11) $4(x+9) = (y+1)^2$

12) $4(x+9) = (y+9)^2$

13) $4(x-5) = (y+7)^2$

14) $20(y+10) = (x-4)^2$