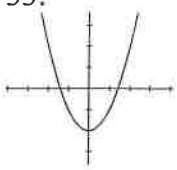
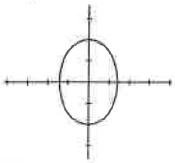
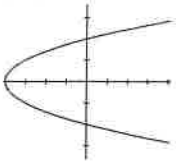
Name _____
Parabolas Worksheet – AP Emphasis
Date _____
Hour _____

Circle the **problem number** of the equation, information or graph that represents a parabola.

1. $\frac{y^2}{4} - \frac{x^2}{25} = 1$
2. $3x^2 + 2x - 4x^2 = 12$
3. $(x+2)^2 + (y-3)^2 = 4$
4. $y = 8(x-7)^2 + 10$
5. $x^2 + 3x + y^2 + 8x = 25$
6. $3x^2 - 4x + 3y^2 + 2x - 50 = 0$
7. $3y^2 - 2x^2 = 12$
8. $\frac{x^2}{256} + \frac{y^2}{1} = 1$
9. $3x^3 + 3y^2 = 36$
10. $-y^2 + 2x + 3x^2 - 40 = 0$
11. $5x^2 + 25x + 3y^2 - 6y + 30 = 0$
12. $y^2 - x^2 = 4$
13. $y = -3x^2 - 4$
14. $(x-6)^2 + (y-6)^2 = 144$
15. $x^2 + y^2 = 9$
16. $x + y^2 - 2 = 0$
17. $\frac{x^2}{121} - \frac{y^2}{9} = 1$
18. $\frac{x^2}{169} + \frac{y^2}{144} = 1$
19. $\frac{x^2}{9} - \frac{y^2}{144} = 1$
20. $x - 3(y-1)^2 = 4$
21. $\frac{y^2}{9} - \frac{x^2}{16} = 1$
22. $\frac{x^2}{36} + \frac{y^2}{16} = 1$
23. $\frac{x^2}{100} + \frac{y^2}{36} = 1$
24. $0 = 2(x-1)^2 + 1 - y$
25. $\left(x + \frac{2}{9}\right)^2 + \left(y + \frac{5}{9}\right)^2 = \frac{4}{9}$
26. center is (3, 4); r = 3
27. vertex is (2, 6); opens up; focus is (2, 7); directrix is y = 5
28. center is (0, 0); The asymptotes are $y = \pm\frac{3}{4}x$. The vertices are (4, 0) and (-4, 0).
29. vertex is (-2, 2); opens down; focus is (-2, 0); directrix y = 4
30. center is (-2, -6); r = 4
31. center is (0, 0); The asymptotes are $y = \pm\frac{1}{2}x$. The vertices are (0, 5) and (0, -5).
32. vertex is (2, 4); opens right; focus is (3, 4); directrix is x = 1

33.


34.


35.


Algebra 2 Name_____ ID: 1

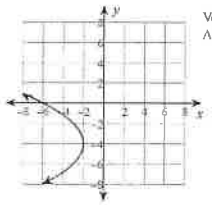
Parabolas

Date_____ Period____

Match the correct conic based on vertex, axis of symmetry, and direction of opening.

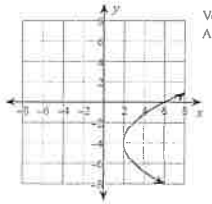
1) $x = \frac{1}{4}(y+4)^2 + 2$

A)



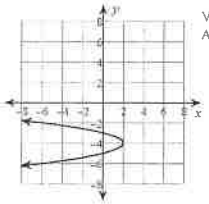
Vertex: $(-2, -4)$
Axis of Sym.: $y = -4$

B)



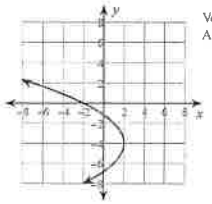
Vertex: $(2, -4)$
Axis of Sym.: $y = -4$

C)



Vertex: $(2, -4)$
Axis of Sym.: $y = -4$

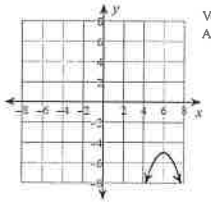
D)



Vertex: $(2, -4)$
Axis of Sym.: $y = -4$

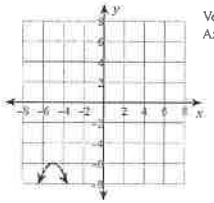
2) $y = (x-6)^2 - 5$

A)



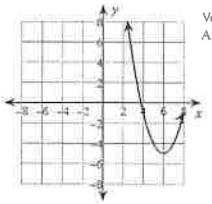
Vertex: $(6, -5)$
Axis of Sym.: $x = 6$

B)



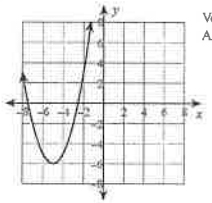
Vertex: $(-5, -6)$
Axis of Sym.: $x = -5$

C)



Vertex: $(6, -5)$
Axis of Sym.: $x = 6$

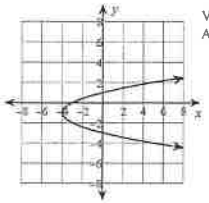
D)



Vertex: $(-5, -6)$
Axis of Sym.: $x = -5$

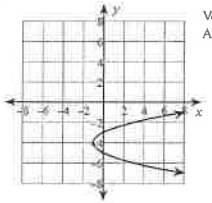
3) $x = (y+1)^2 + 4$

A)



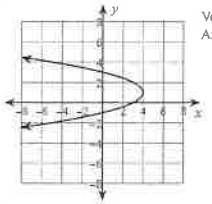
Vertex: $(-4, -1)$
Axis of Sym.: $y = -1$

B)



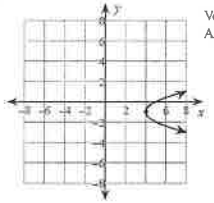
Vertex: $(-1, -4)$
Axis of Sym.: $y = -4$

C)



Vertex: $(4, 1)$
Axis of Sym.: $y = 1$

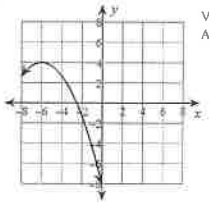
D)



Vertex: $(4, -1)$
Axis of Sym.: $y = -1$

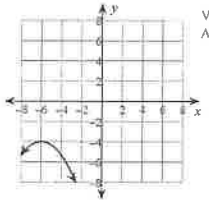
4) $y = \frac{1}{3}(x+4)^2 + 6$

A)



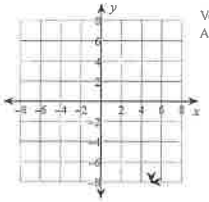
Vertex: $(-6, 4)$
Axis of Sym.: $x = -6$

B)



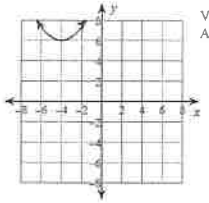
Vertex: $(-6, -4)$
Axis of Sym.: $x = -6$

C)



Vertex: $(5, -8)$
Axis of Sym.: $x = 5$

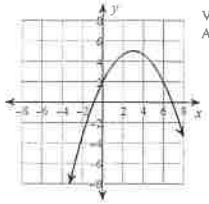
D)



Vertex: $(-4, 6)$
Axis of Sym.: $x = -4$

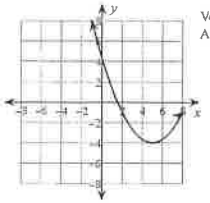
5) $y = \frac{1}{3}(x-3)^2 + 5$

A)



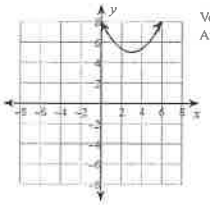
Vertex: (3, 5)
Axis of Sym.: $x = 3$

B)



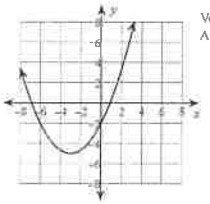
Vertex: (5, −4)
Axis of Sym : $x = 5$

C)



Vertex: (3, 5)
Axis of Sym.: $x = 3$

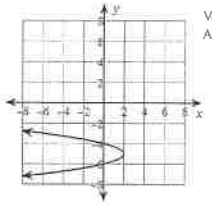
D)



Vertex: (−3, −5)
Axis of Sym.: $x = -3$

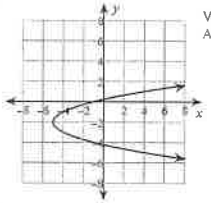
6) $x = -2(y+5)^2 + 2$

A)



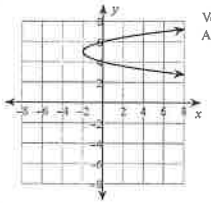
Vertex: (2, −5)
Axis of Sym.: $y = -5$

B)



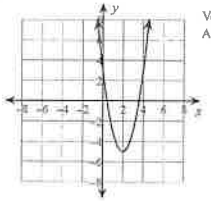
Vertex: (−5, −2)
Axis of Sym.: $y = -2$

C)



Vertex: (−2, 5)
Axis of Sym.: $y = 5$

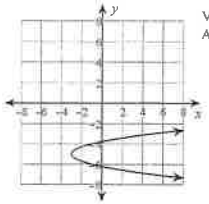
D)



Vertex: (2, −5)
Axis of Sym : $x = 2$

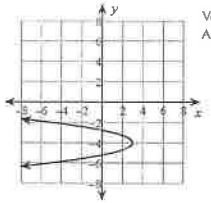
7) $x = -2(y+3)^2 - 4$

A)



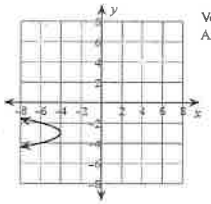
Vertex: (−3, −5)
Axis of Sym.: $y = -5$

B)



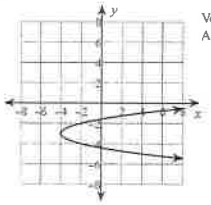
Vertex: (3, −4)
Axis of Sym.: $y = -4$

C)



Vertex: (−4, −3)
Axis of Sym.: $y = -3$

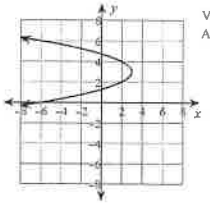
D)



Vertex: (−4, −3)
Axis of Sym.: $y = -3$

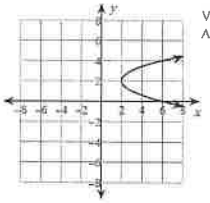
8) $x = -(y-3)^2 + 3$

A)



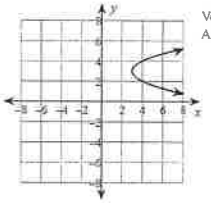
Vertex: (3, 3)
Axis of Sym.: $y = 3$

B)



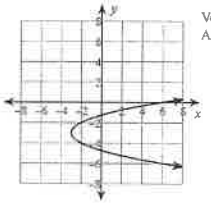
Vertex: (2, 2)
Axis of Sym.: $y = 2$

C)



Vertex: (3, 3)
Axis of Sym.: $y = 3$

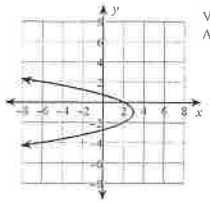
D)



Vertex: (−3, −3)
Axis of Sym : $y = -3$

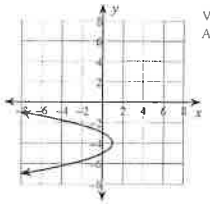
9) $x = (y+3)^2 - 1$

A)



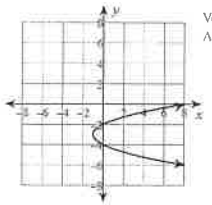
Vertex: $(3, -1)$
Axis of Sym.: $y = -1$

B)



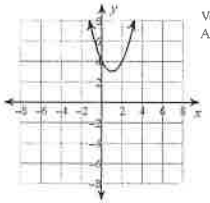
Vertex: $(1, -4)$
Axis of Sym.: $y = -4$

C)



Vertex: $(-1, -3)$
Axis of Sym.: $y = -3$

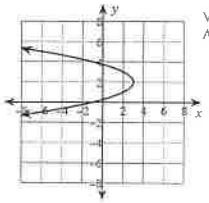
D)



Vertex: $(1, 3)$
Axis of Sym.: $x = 1$

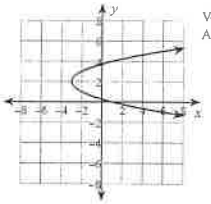
10) $x = (y-2)^2 + 3$

A)



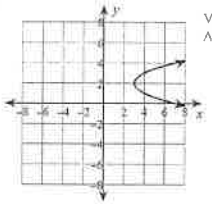
Vertex: $(3, 2)$
Axis of Sym.: $y = 2$

B)



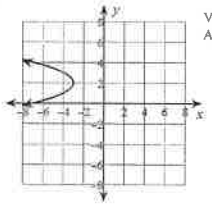
Vertex: $(-3, 2)$
Axis of Sym.: $y = 2$

C)



Vertex: $(3, 2)$
Axis of Sym.: $y = 2$

D)



Vertex: $(-3, 2)$
Axis of Sym.: $y = 2$