

Math 3 Unit 7 Worksheet 7
Converting Parabolas and Circles to Descriptive Form

Name: _____
Date: _____ **Per:** _____

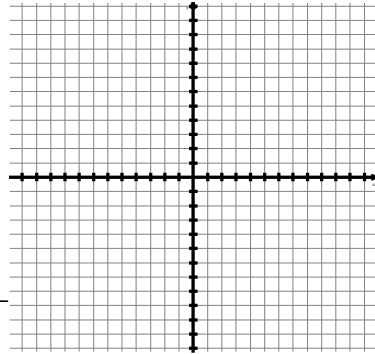
Show all appropriate work. {It might be possible to sketch and/or answer the follow-up information before converting to descriptive form. You may do this, but you must still do the algebraic manipulation needed to convert each to descriptive form.}

Descriptive form reminder: Parabola: $y = a(x - h)^2 + k$ or $x = a(y - k)^2 + h$ & Circle: $(x - h)^2 + (y - k)^2 = r^2$

[1-4]: A) Convert to descriptive form, B) sketch, and identify the following for each:
 C) Vertex D) Line/Axis of symmetry E) Focus F) Directrix G) Focal Chord Endpoints.

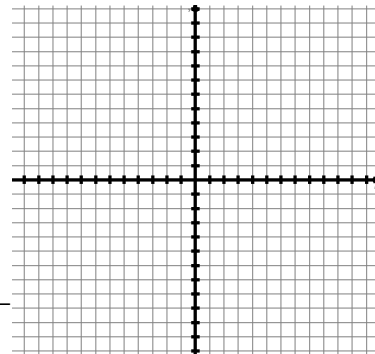
1) $(x - 3)^2 = 8(y - 5)$

Vertex: _____
 Line of Symmetry: _____
 Focus: _____
 Directrix: _____
 Focal chord endpoints:
 _____ and _____



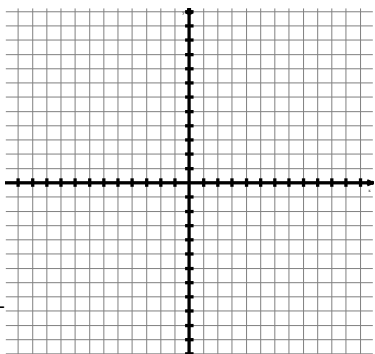
2) $(y + 2)^2 = 4(x + 1)$

Vertex: _____
 Line of Symmetry: _____
 Focus: _____
 Directrix: _____
 Focal chord endpoints:
 _____ and _____



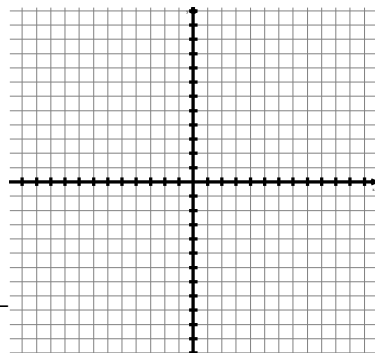
3) $y = -\frac{1}{4}x^2 + 5x - 20$

Vertex: _____
 Line of Symmetry: _____
 Focus: _____
 Directrix: _____
 Focal chord endpoints:
 _____ and _____



4) $x = \frac{1}{2}y^2 + 4y + 13$

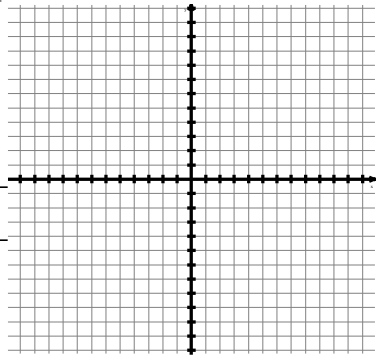
Vertex: _____
 Line of Symmetry: _____
 Focus: _____
 Directrix: _____
 Focal chord endpoints:
 _____ and _____



[5-10]: A) Convert to descriptive form, B) sketch, and identify the following for each:
 C) Vertex D) Axis/Line of symmetry E) Number of x-intercepts F) Number of y-intercepts.

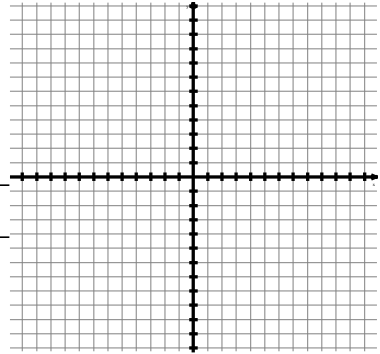
5) $(x - 5)^2 + 3(y - 2) = 0$

Vertex: _____
 Line of Symmetry: _____
 Number of x-intercepts: _____
 Number of y-intercepts: _____



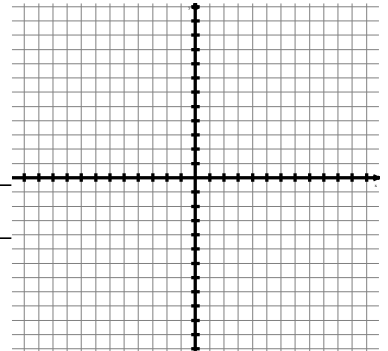
6) $x = -y^2 + 6y - 8$

Vertex: _____
 Line of Symmetry: _____
 Number of x-intercepts: _____
 Number of y-intercepts: _____



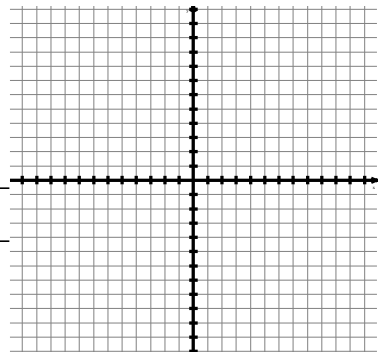
7) $x = -3y^2 + 6y - 5$

Vertex: _____
 Line of Symmetry: _____
 Number of x-intercepts: _____
 Number of y-intercepts: _____



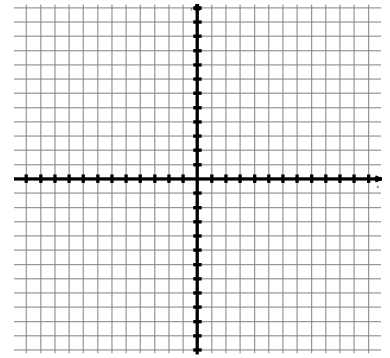
8) $y = 2x^2 - 28x + 98$

Vertex: _____
 Line of Symmetry: _____
 Number of x-intercepts: _____
 Number of y-intercepts: _____



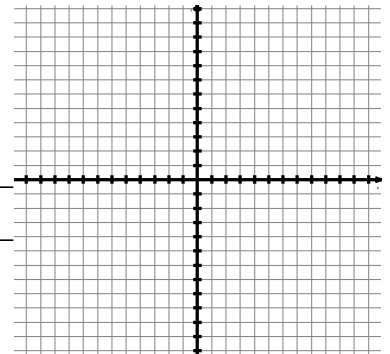
9) $(y - 4)^2 = 12x$

Vertex: _____
 Line of Symmetry: _____
 Number of x-intercepts: _____
 Number of y-intercepts: _____



10) $(x + 4)^2 + 6(y + 2) = 0$

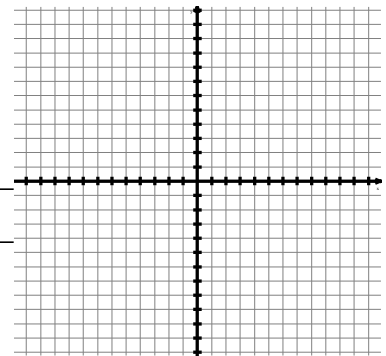
Vertex: _____
 Line of Symmetry: _____
 Number of x-intercepts: _____
 Number of y-intercepts: _____



[11-12]: A) Convert to descriptive form, B) sketch, and identify the following for each:
 C) Center D) Radius E) Number of x-intercepts F) Number of y-intercepts.

11) $x^2 + y^2 - 4x + 10y + 25 = 0$

Center: _____
 Radius: _____
 Number of x-intercepts: _____
 Number of y-intercepts: _____



12) $x^2 + y^2 + 8x - 2y + 5 = 0$

Center: _____
 Radius: _____
 Number of x-intercepts: _____
 Number of y-intercepts: _____

