

Math Sheet

Name _____ Score _____ / 10 Teacher _____ Date _____

Writing Equations of Parabolas

Use the given information to write each parabola in vertex form.

1. Vertex: (0,0)
Focus: $(0, \frac{-1}{12})$
Vertex-form equation:

2. Vertex: (1,-1)
Focus: $(1, \frac{-7}{8})$
Vertex-form equation:

3. Vertex: (0,0)
Directrix: $y = \frac{1}{16}$
Vertex-form equation:

4. Vertex: (-2 , -4)
Directrix: $y = \frac{-65}{16}$
Vertex-form equation:

5. Opens: up/down
Vertex: (4,-6)
y-intercept: (0,74)
Vertex-form equation:

6. Focus: $(-7, \frac{-13}{4})$
Directrix: $y = \frac{-11}{4}$
Vertex-form equation:

7. Opens: left/right
Vertex: (-3 ,8)
Point: (-35 ,12)
Vertex-form equation:

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Writing Equations of Parabolas

Use the given information to write each parabola in vertex form.

8. Three points (opens up/down): $(-3, -28)$, $(1, -4)$, $(4, -49)$
Vertex-form equation:

9. Vertex: $(0, 0)$
Opens: right
Focal distance: $\frac{1}{4}$
Vertex-form equation:

10. Vertex: $(0, 0)$
Focus: $(0, -\frac{1}{20})$
Vertex-form equation:

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Writing Equations of Parabolas

Answer Key

Use the given information to write each parabola in vertex form.

1. Vertex: (0,0)
Focus: $(0, -\frac{1}{12})$
Answer: $y = -3 \cdot x^2$

2. Vertex: (1,-1)
Focus: $(1, -\frac{7}{8})$
Answer: $y = 2 \cdot (x - 1)^2 - 1$

3. Vertex: (0,0)
Directrix: $y = \frac{1}{16}$
Answer: $y = -4 \cdot x^2$

4. Vertex: (-2 , -4)
Directrix: $y = \frac{-65}{16}$
Answer: $y = 4 \cdot (x + 2)^2 - 4$

5. Opens: up/down
Vertex: (4,-6)
y-intercept: (0,74)
Answer: $y = 5 \cdot (x - 4)^2 - 6$

6. Focus: $(-7, -\frac{13}{4})$
Directrix: $y = \frac{-11}{4}$
Answer: $y = -1 \cdot (x + 7)^2 - 3$

7. Opens: left/right
Vertex: (-3 , 8)
Point: (-35 , 12)
Answer: $x = -2 \cdot (y - 8)^2 - 3$

8. Three points (opens up/down): (-3 , -28), (1,-4), (4,-49)
Answer: $y = -3 \cdot x^2 - 1$

9. Vertex: (0,0)
Opens: right
Focal distance: $\frac{1}{4}$
Answer: $x = y^2$

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Writing Equations of Parabolas

Answer Key

Use the given information to write each parabola in vertex form.

10. Vertex: (0,0)

Focus: $(0, -\frac{1}{20})$

Answer: $y = -5x^2$