Algebra II Practice G.GPE.A.2 Graphing Quadratic Functions 3a

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

1) Vertex at origin, opens down,
1 unit between the vertex and focus

A) $y = \frac{4}{4}x^2$ B) $y = -\frac{1}{4}x^2$

C) $y = \frac{1}{4}x^2$ D) $y = -\frac{1}{5} \cdot -x^2$

2) Vertex at origin, opens up,
$\frac{1}{4}$ units between the vertex and focus

A) $x = \frac{1}{2}(y-1)^2 - 2$ B) $y = x^2$

C) $y = -(x+2)^2 - 1$ D) $y = -x^2$

3) Vertex at origin, opens down,
$\frac{1}{12}$ units between the vertex and focus

A) $y = x^2$ B) $y = 3x^2$

C) $y = (x+2)^2 - 2$ D) $y = -3x^2$

4) Vertex at origin, opens up,
$\frac{1}{16}$ units between the vertex and focus

A) $y = 2x^2$

B) $y = 4x^2$

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

D) $y = -4x^2$

5) Vertex at origin, Focus: $\left(0, \frac{1}{20}\right)$

A) $y = -5x^2$ B) $y = 5x^2$

C) $y = x^2$ D) $y = -2x^2$

6) Vertex at origin, Focus: $\left(0, -\frac{1}{2}\right)$

A) $y = \frac{1}{2}x^2$

B) $y = -\frac{1}{1}x^2$

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

D) $y = -\frac{1}{2}x^2$

7) Vertex at origin, Directrix: $y = \frac{1}{8}$

A) $y = 3x^2$

B) $y = -2x^2$

C) $y = 2x^2$

D) $y = -2(x-1)^2 + 1$

8) Vertex at origin, Directrix: $y = \frac{1}{48}$

A) $y = -12(x-1)^2 + 2$

B) $y = 12x^2$

C) $y = 9x^2$

D) $y = -12x^2$

9) Vertex: $(-10, 6)$, Focus: $\left(-10, \frac{23}{4}\right)$

A) $y = -(x+6)^2 - 10$

B) $y = (x+10)^2 + 6$

C) $y = -(x+10)^2 + 6$

D) $y = \frac{1}{2}(x+10)^2 - 6$

10) Vertex: $(-9, -6)$, Focus: $\left(-9, -\frac{11}{2}\right)$

A) $y = -\frac{1}{2}(x-6)^2 + 9$

B) $y = \frac{1}{2}(x+6)^2 + 9$

C) $y = -2(x+9)^2 - 6$

D) $y = \frac{1}{2}(x+9)^2 - 6$

11) Vertex: $(0, -7)$, Focus: $\left(0, -\frac{22}{3}\right)$

A) $y = \frac{3}{4}(x-7)^2$

B) $y = \frac{3}{4}(x-2)^2 - 6$

C) $y = -\frac{3}{4}x^2 - 7$

D) $y = -2(x-1)^2 - 9$

12) Vertex: $(1, -8)$, Focus: $(1, -9)$

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

B) $y = \frac{1}{4}(x+1)^2 - 8$

C) $y = -\frac{1}{4}(x-1)^2 - 8$

D) $y = -\frac{1}{4}x^2 + 9$

13) Vertex: $(9, -1)$, Directrix: $y = -\frac{7}{8}$

A) $y = 2(x-8)^2 - 2$

B) $y = -2(x-9)^2 - 1$

C) $y = -2(2x-9)^2 - 1$

D) $y = (x-9)^2 + 2$

14) Vertex: $(-8, -4)$, Directrix: $y = -\frac{49}{12}$

A) $y = 3(x-8)^2 + 4$

B) $y = 3(x-6)^2 + 3$

C) $y = 3(x+8)^2 - 4$

D) $y = -3(x+9)^2 - 5$

15) Vertex: $(-4, -8)$, Directrix: $y = -\frac{15}{2}$

A) $y = (x+4)^2 - 8$

B) $y = \frac{1}{2}(x+8)^2 + 4$

C) $y = -\frac{1}{2}(x-8)^2 - 4$

D) $y = -\frac{1}{2}(x+4)^2 - 8$

16) Vertex: $(4, 8)$, Directrix: $y = \frac{31}{4}$

A) $y = (x-4)^2 + 8$

B) $y = (x+5)^2 - 9$

C) $y = (x-8)^2 - 4$

D) $y = -(x-4)^2 + 8$

17) Focus: $\left(-8, -\frac{9}{2}\right)$, Directrix: $y = \frac{9}{2}$

A) $y = -\frac{1}{18}(x+8)^2$

B) $y = -\frac{1}{22}(3x+8)^2$

C) $y = -\frac{1}{18}(x-10)^2 - 2$

D) $y = \frac{1}{18}(x+9)^2 + 1$

18) Focus: $\left(-4, \frac{1}{4}\right)$, Directrix: $y = -\frac{1}{4}$

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

B) $y = -(x-4)^2$

C) $y = (x+6)^2$

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

19) Focus: $(-2, -6)$, Directrix: $y = -4$

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

B) $y = 2(x+4)^2 + 7$

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

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

20) Focus: $(-10, 5)$, Directrix: $y = 13$

A) $y = -\frac{1}{16}(x+10)^2 + 9$

B) $y = \frac{1}{16}(x+9)^2 + 10$

C) $y = -\frac{1}{16}(x-10)^2 - 9$

D) $y = \frac{1}{16}(x+10)^2 + 9$

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