

Algebra 3 Assignment # 6

Write the equation of a parabola which satisfies each of the following please

(1) focus at $(0, 1)$, directrix is $y = -1$.

(2) vertex at $(-2, 1)$, focus at $(-2, 5)$.

(3) focus at $(4, -2)$, directrix is $x = 6$.

(4) vertex at $(1, 3)$, directrix is $x = 5$.

(5) vertex at $\left(-\frac{1}{2}, 0\right)$, focus at $\left(-\frac{1}{2}, -\frac{1}{4}\right)$.

(6) directrix is $x = 0$, focus at $\left(1, \frac{5}{2}\right)$.

(7) focus at $(0, 0)$, directrix is $x = -5$.

(8) vertex at $(2, -2)$, passes through $(0, 0)$.

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Answers

(1) $x^2 = 4y$

(2) $(x + 2)^2 = 16(y - 1)$

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

(4) $(y - 3)^2 = -16(x - 1)$

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

(6) $\left(y - \frac{5}{2}\right)^2 = 2\left(x - \frac{1}{2}\right)$

(7) $y^2 = 10\left(x + \frac{5}{2}\right)$

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