

Worksheet 5 : Quadratic functions(ฟังก์ชันกำลังสอง)

The general form equation is $y = ax^2 + bx + c$, When a, b, c is real number and $a \neq 0$.

or $y = a(x - h)^2 + k$, When a, h, k is real number and $a \neq 0$.

The graph shape is a curve called a “ **parabola** ”.

➤ Pattern 1 $y = a(x - h)^2 + k$

The characteristics of the graph.

★ $a > 0$ Upward-facing parabola.

★ $a < 0$ Downward-facing parabola.

Point of Inflection (h, k)

★ Call the point (h, k) the minimum point.

★ Call the point (h, k) the maximum point.

Draw the graph of the given function and indicate the point of inflection.

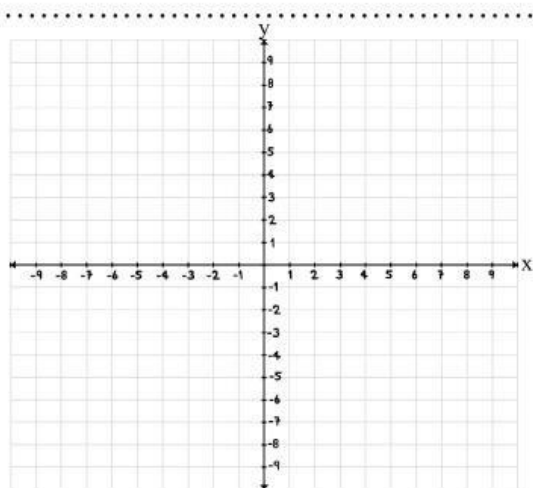
1. $y = (x - 2)^2 + 3$

Solution

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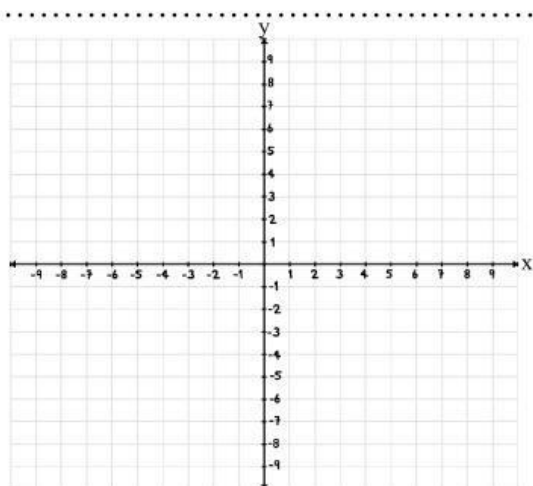
3. $y = x^2 + 2$

Solution

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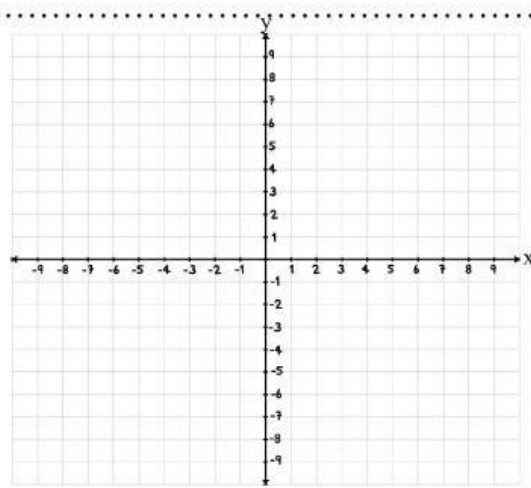
2. $y = -(x + 1)^2 - 3$

Solution

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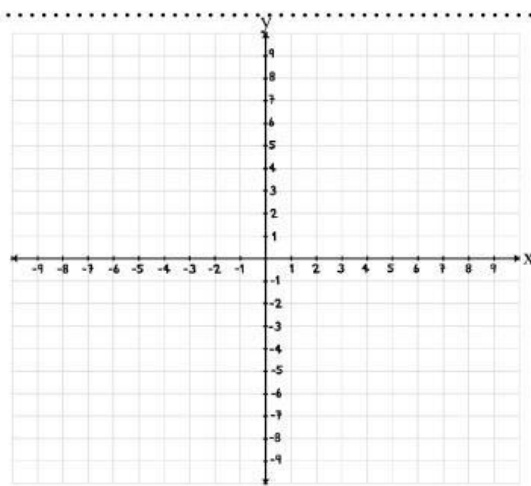
4. $y = -x^2$

Solution

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Draw the graph of the given function and consider the following quadratic function.
 Find: 1. The characteristics of the graph 2. The point of inflection 3. The minimum/maximum value.
 4. The points where the graph intercepts the x-axis and y-axis.

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

Solution

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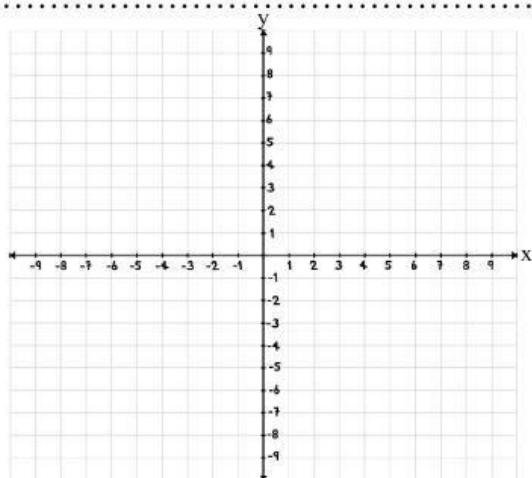
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3. $y = 3x^2 + 7$

Solution

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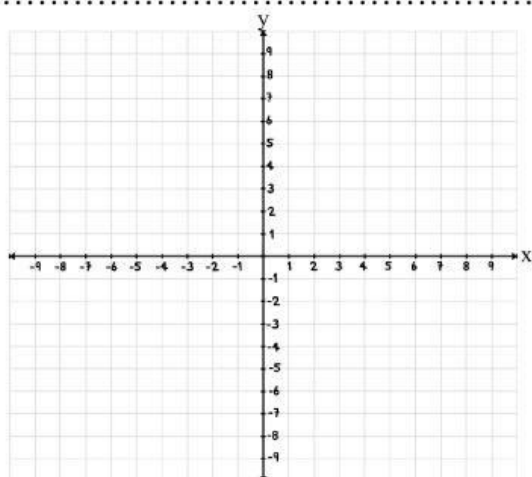
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2. $y = -2(x + 3)^2 - 4$

Solution

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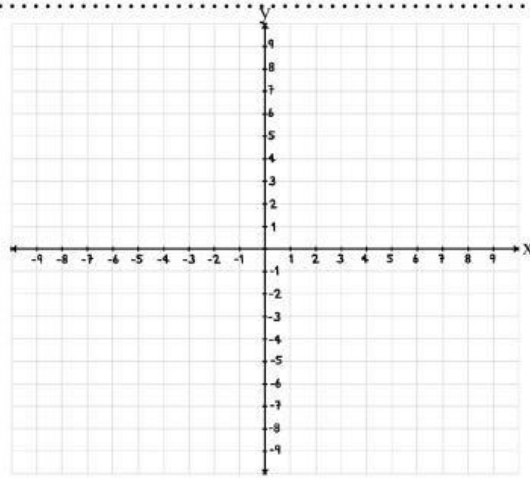
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4. $y = -\frac{1}{2}x^2$

Solution

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