

1. Graph the parabola $y = x^2 - 2x - 8$. Compute the coordinates of at least five points on the parabola, including vertex and intercepts.

a) Factor $x^2 - 2x - 8$ by completing the square.

b) Use your computation above to find each of the following.

polynomial form: $y = x^2 - 2x - 8 \implies y$ -intercept: _____

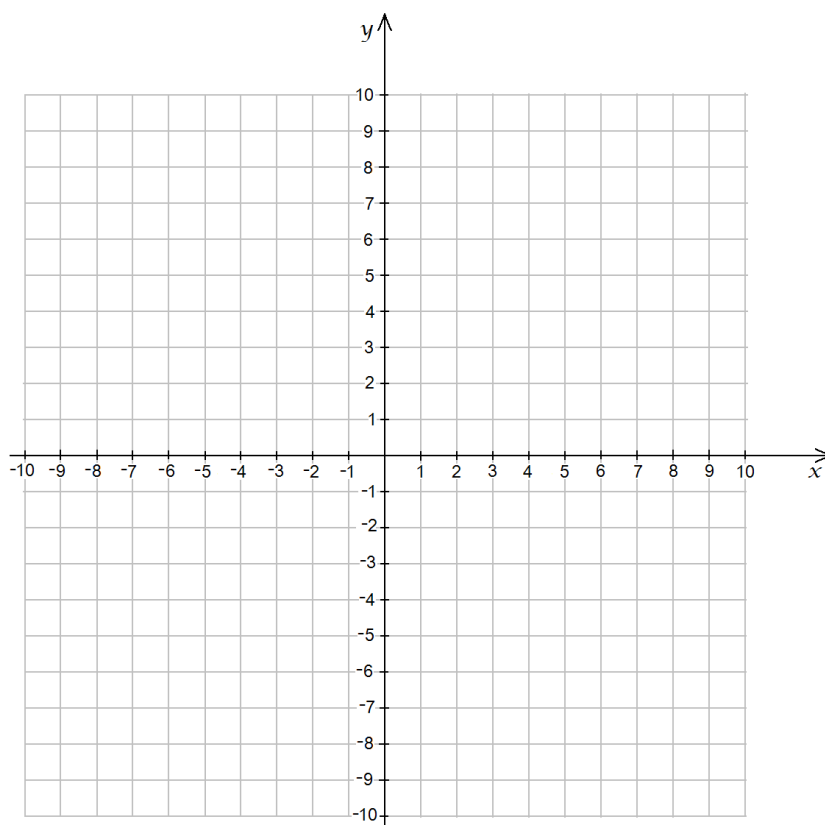
standard form: $y = \text{_____} \implies \text{vertex: } \text{_____}$

factored form: $y = \text{_____} \implies x$ -intercept(s): _____

c) Find the coordinates of a few additional points and graph the equation.

Additional points:

x	y



2. Graph the parabola $y = x^2 + 6x + 5$. Compute the coordinates of at least five points on the parabola, including vertex and intercepts.

a) Factor $x^2 + 6x + 5$ by completing the square.

- b) Use your computation above to find each of the following.

polynomial form: $y = x^2 + 6x + 5 \implies y$ -intercept: _____

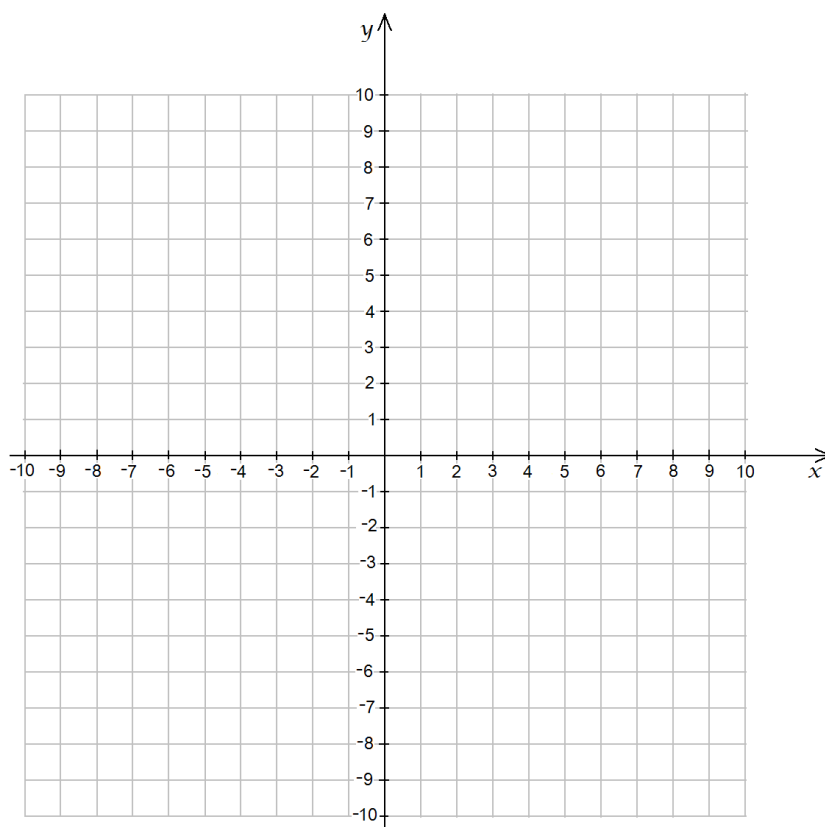
standard form: $y = \text{_____} \implies \text{vertex: } \text{_____}$

factored form: $y = \text{_____} \implies x$ -intercept(s): _____

- c) Find the coordinates of a few additional points and graph the equation.

Additional points:

x	y



3. Graph the parabola $y = x^2 - 4x + 3$. Compute the coordinates of at least five points on the parabola, including vertex and intercepts.

a) Factor $x^2 - 4x + 3$ by completing the square.

- b) Use your computation above to find each of the following.

polynomial form: $y = x^2 - 4x + 3 \implies y$ -intercept: _____

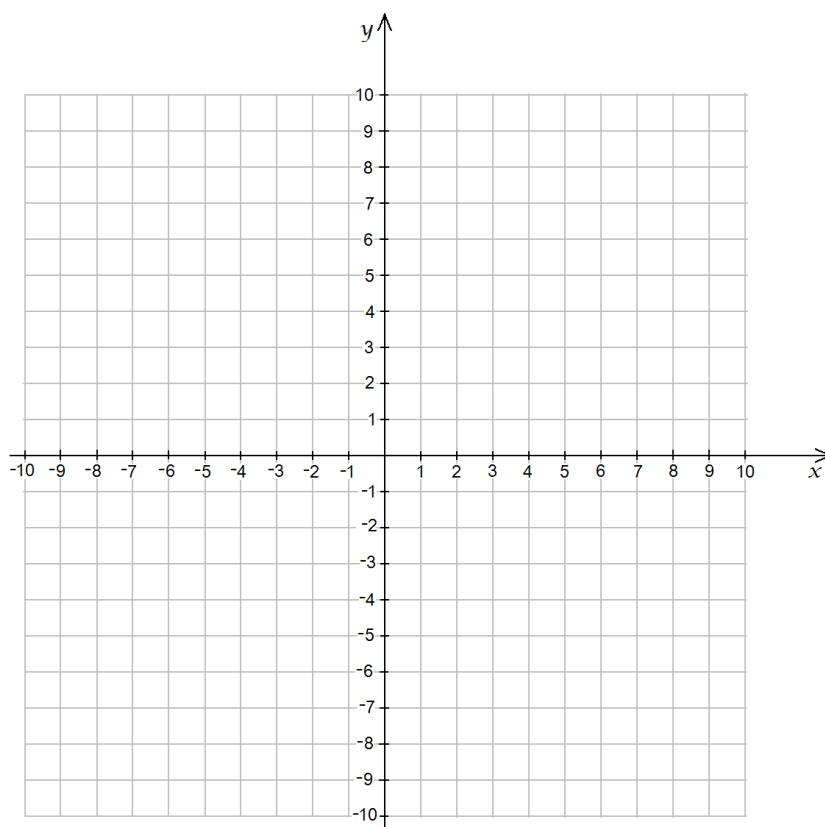
standard form: $y = \text{_____} \implies \text{vertex: } \text{_____}$

factored form: $y = \text{_____} \implies x$ -intercept(s): _____

- c) Find the coordinates of a few additional points and graph the equation.

Additional points:

x	y



4. Graph the parabola $y = x^2 + 8x + 7$. Compute the coordinates of at least five points on the parabola, including vertex and intercepts.

a) Factor $x^2 + 8x + 7$ by completing the square.

- b) Use your computation above to find each of the following.

polynomial form: $y = x^2 + 8x + 7 \implies y$ -intercept: _____

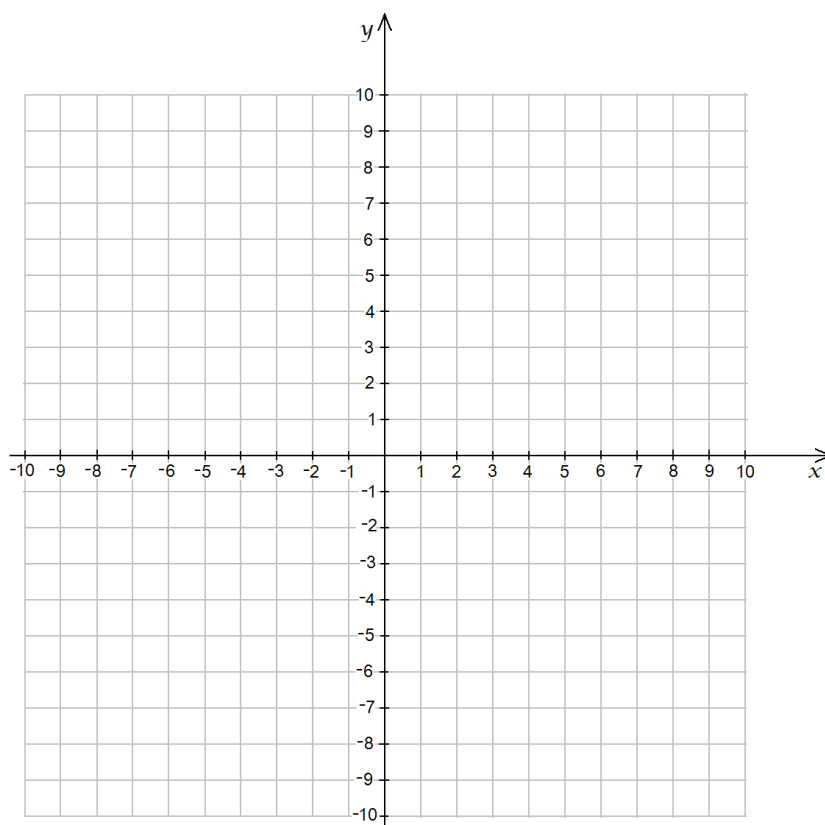
standard form: $y = \text{_____} \implies \text{vertex: } \text{_____}$

factored form: $y = \text{_____} \implies x$ -intercept(s): _____

- c) Find the coordinates of a few additional points and graph the equation.

Additional points:

x	y



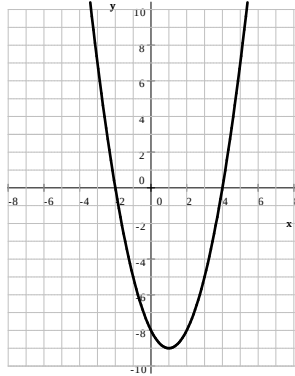
Answers

1. polynomial form: $y = x^2 - 2x - 8 \Rightarrow y$ -intercept: $(0, -8)$

standard form: $y = (x - 1)^2 - 9 \Rightarrow$ vertex: $(1, -9)$

factored form: $y = (x + 2)(x - 4) \Rightarrow x$ -intercepts: $(-2, 0)$ and $(4, 0)$

x	y
-3	7
-2	0
-1	-5
0	-8
1	-9 vertex
2	-8
3	-5
4	0



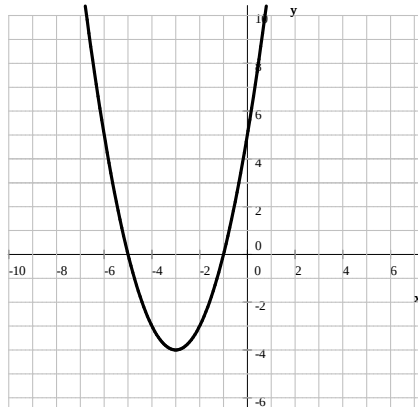
additional points: $(-3, 7)$,
 $(-1, -5)$, $(2, -8)$,
 $(3, -5)$, $(5, 7)$

2. polynomial form: $y = x^2 + 6x + 5 \Rightarrow y$ -intercept: $(0, 5)$

standard form: $y = (x + 3)^2 - 4 \Rightarrow$ vertex: $(-3, -4)$

factored form: $y = (x + 5)(x + 1) \Rightarrow x$ -intercepts: $(-5, 0)$ and $(-1, 0)$

x	y
-6	5
-5	0
-4	-3
-3	-4 vertex
-2	-3
-1	0
0	5



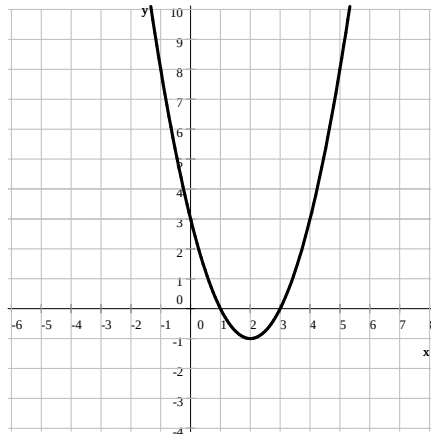
additional points: $(-6, 5)$,
 $(-4, -3)$, $(-2, -3)$, $(1, 12)$

3. polynomial form: $y = x^2 - 4x + 3 \Rightarrow y$ -intercept: $(0, 3)$

standard form: $y = (x - 2)^2 - 1 \Rightarrow$ vertex: $(2, -1)$

factored form: $y = (x - 1)(x - 3) \Rightarrow x$ -intercepts: $(1, 0)$ and $(3, 0)$

x	y
-1	8
0	3
1	0
2	-1 vertex
3	0
4	3
5	8
6	15



additional points: $(-1, 8)$,
 $(4, 3)$, $(5, 8)$, $(6, 15)$

4. polynomial form: $y = x^2 + 8x + 7 \Rightarrow y$ -intercept: $(0, 7)$

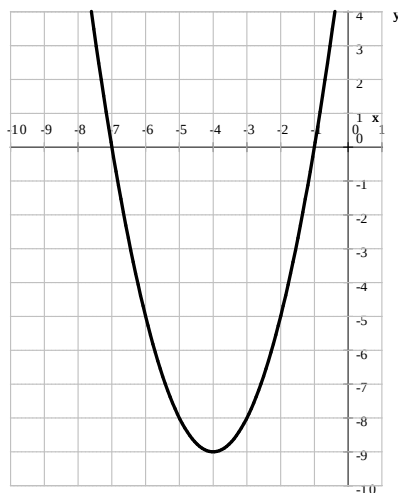
standard form: $y = (x + 4)^2 - 9 \Rightarrow$ vertex: $(-4, -9)$

factored form: $y = (x + 7)(x + 1)$

$\Rightarrow x$ -intercepts: $(-7, 0)$ and $(-1, 0)$

additional points: $(-6, -5)$,
 $(-5, -8)$, $(-3, -8)$, $(-2, -5)$

x	y
-7	0
-6	-5
-5	-8
-4	-9 vertex
-3	-8
-2	-5
-1	0
0	7
1	12



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