10.2 Quadratic equations puzzle

Solve the quadratic equations and match them with the answers. The answer letters matched with each question number decode the answer to the riddle below.

1 $x^2 - 9 = 0$

2 $x^2 = 6x$

3 $x^2 - 4x + 4 = 0$

4 $(2x + 1)(x - 3) = 0$

5 $2x^2 - 5x + 2 = 0$

6 $6x^2 + 9x - 27 = 0$

7 $x(x + 4) - 6(x + 4) = 0$

8 $x(3x + 1) = 4$

9 $\frac{x}{5} = \frac{5}{x}$

10 $(3x + 5)(2x - 3) = 0$

11 $x^2 + 5x - 9 = 0$

12 $2x^2 - 32 = 0$

13 $(x - 4)(x + 3) = 8$

14 $x^2 - 9x + 2 = 0$

15 $x(x + 4) + 8(x + 5) = 4$

16 $(x - 3)^2 = 22$

17 $10x^2 - 17x - 20 = 0$

18 $3x(x + 7) = 9x$

19 $2x^2 - 7x + 2 = 0$

20 $x^2 + 7x = 14$

21 $^-x^2 + 5x + 7 = 0$

22 $3x^2 + 5x - 4 = 0$

23 $(2x - 5)^2 = 0$

24 $2(x + 1)^2 = 12$

25 $2x^2 + 3x - 35 = 0$

26 $2x(2x - 1) = 30$

27 $^-4x^2 + 6x - 1 = 0$

28 $9x^2 - 12x + 4 = 0$

29 $x + 2 = \frac{4}{x - 1}$

30 $9x^2 - 9x - 4 = 0$

Answers

R $x = 0, 6$	**I** $x = {}^-6$	**J** $x = \pm 3$	**S** $x = \pm 4$	**D** $x = 3 \pm \sqrt{22}$
W $x = {}^-3, \frac{3}{2}$	**T** $x = 1, {}^-\frac{4}{3}$	**H** $x = 3, {}^-\frac{1}{2}$	**Q** $x = \frac{2}{3}$	**O** $x = \frac{5}{2}$
X $x = 5, {}^-4$	**Y** $x = {}^-1 \pm \sqrt{6}$	**G** $x = \pm 5$	**V** $x = 2, {}^-3$	**B** $x = 2$
N $x = \frac{{}^-5 \pm \sqrt{73}}{6}$	**A** $x = \frac{9 \pm \sqrt{73}}{2}$	**L** $x = \frac{{}^-7 \pm \sqrt{105}}{2}$	**U** $x = \frac{5 \pm \sqrt{53}}{2}$	**S** $x = \frac{{}^-5 \pm \sqrt{61}}{2}$
M $x = {}^-5, \frac{7}{2}$	**K** $x = 2, \frac{1}{2}$	**E** $x = \frac{7 \pm \sqrt{33}}{4}$	**T** $x = {}^-\frac{5}{3}, \frac{3}{2}$	**E** $x = \frac{3 \pm \sqrt{5}}{4}$
C $x = 0, {}^-4$	**O** $x = 3, {}^-\frac{5}{2}$	**F** $x = {}^-4, 6$	**Z** $x = {}^-\frac{1}{3}, \frac{4}{3}$	**P** $x = {}^-\frac{4}{5}, \frac{5}{2}$

Why is an equation solver so difficult to argue with?

[4 19] [5 19 27 17 11] [18 4 14 22 9 15 22 9] [8 4 19] [12 21 3 1 27 18 8]

[26 7] [10 4 27] [7 26 2 25 21 20 14], [11 14 24 12] [23 22 19]

[10 4 15 22 9] [23 22] [26 22 27] [12 15 16 19] [3 21 8] [16 26 27 11]

[10 4 27] [26 17 17 23 12 15 10 19] [26 22] [8 4 19] [23 8 4 27 2],

[14 22 16] [23 7 10 27 22] [9 15 29 19 12] [15 2 2 14 10 15 26 22 14 20].

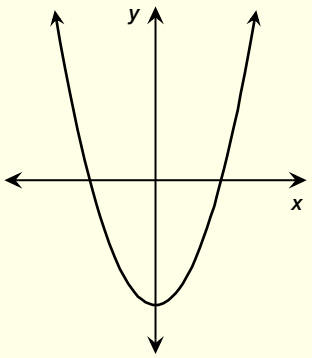
[14 22 11 6 19 2 11].

10.3 Features of a parabola

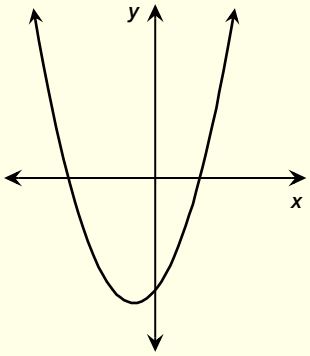
Complete the table below, then graph the parabolas neatly in your workbook.

Equation	x-intercepts ($y = 0$)	y-intercept ($x = 0$)	Axis of symmetry	Turning point	Which graph below?
1 $y = 3x^2 - 12x + 9$	$x = 1$ or 3				
2 $y = {}^-2x^2 - 8x - 6$		$y = {}^-6$			
3 $y = x^2 - 4x + 5$	none		$x = 2$		
4 $y = 2x^2 + 2x - 12$				$({}^-\frac{1}{2}, {}^-12\frac{1}{2})$	
5 $y = x^2 + 2x + 1$					B
6 $y = {}^-x^2 + 3x$		$y = 0$			
7 $y = x^2 - 4$			$x = 0$		
8 $y = {}^-x^2 - 2x - 2$	none			$({}^-1, {}^-1)$	

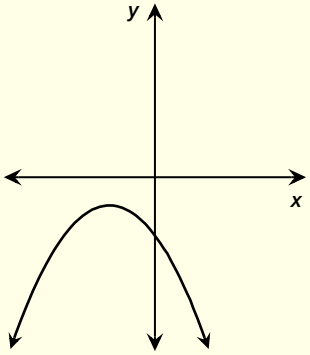
A



D



G



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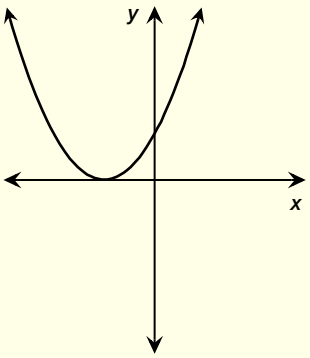

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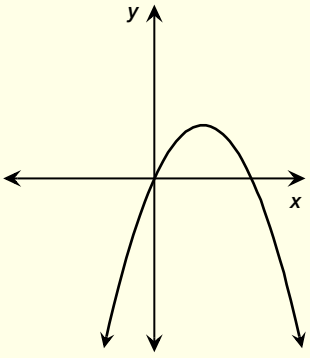

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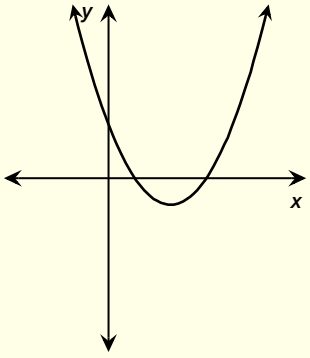

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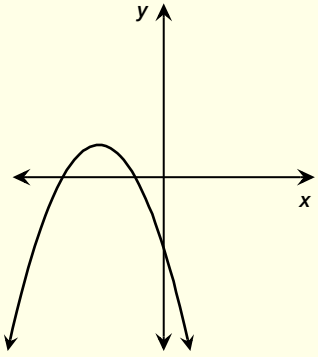

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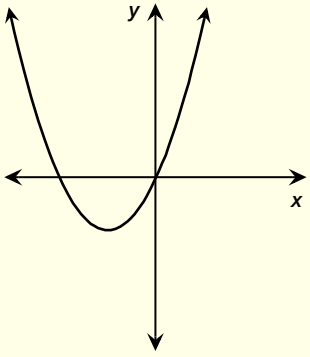

I