



Puzzle Time

What Has More Letters Than The Alphabet?

Write the letter of each answer in the box containing the exercise number.

Find the axis of symmetry and the vertex of the graph of the function.

1. $y = 2x^2 + 8x + 7$ 2. $y = 6x^2 - 4x - 9$
 3. $y = -\frac{3}{5}x^2 - 12x - 25$ 4. $y = -\frac{9}{4}x^2 - 18x + 60$

Describe the domain and range of the function.

5. $y = 4x^2 + 16x - 7$
 6. $y = -6x^2 + 48x - 40$
 7. $y = -3x^2 + 12x + 9$
 8. $y = 5x^2 - 40x + 60$

Tell whether the function has a minimum value or a maximum value. Then find the value.

9. $y = 3x^2 - 12x + 1$
 10. $y = -4x^2 + 48x - 144$
 11. $y = -\frac{1}{2}x^2 - 8x - 7$
 12. $y = 2x^2 + 2x + 7$
 13. The function $h(t) = -4t^2 + 20t$ represents the height (in feet) of an athlete t seconds after pole vaulting. After how many seconds does the athlete reach his or her maximum height?

Answers

- H. $x = \frac{1}{3}; \left(\frac{1}{3}, -\frac{29}{3}\right)$
 S. $x = -4; (-4, 96)$
 I. $x = -10; (-10, 35)$
 E. $x = -2; (-2, -1)$
 T. 2.5
 B. 5
 F. maximum; 0
 O. maximum; 25
 E. minimum; -11
 T. minimum; $\frac{13}{2}$
 C. all real numbers; $y \leq 56$
 P. all real numbers; $y \geq -20$
 F. all real numbers; $y \geq -23$
 O. all real numbers; $y \leq 21$

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| 13 | 2 | 9 | | 8 | 11 | 4 | 12 | | 7 | 5 | 10 | 3 | 6 | 1 |
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