

Practice: Represent Quadratic Relations in Different Ways

1. Find the zeros of each relation, without graphing.
 - a) $y = (x + 2)(x - 3)$
 - b) $y = (x - 5)(x + 4)$
 - c) $y = (x + 1)(x + 6)$
 - d) $y = (x - 9)(x - 8)$
2. Find the zeros of each quadratic relation, without graphing.
 - a) $y = x^2 - 3x - 10$
 - b) $y = x^2 - 11x + 30$
 - c) $y = x^2 + 6x + 8$
 - d) $y = x^2 + x - 12$
3. Consider the quadratic relation $y = (x + 3)(x + 5)$.
 - a) Does the relation have a maximum or minimum value?
 - b) Identify the y -intercept.
 - c) Identify the zeros of the relation.
4. Consider the quadratic relation $y = (x + 6)(x - 1)$.
 - a) Does the relation have a maximum or a minimum value?
 - b) Identify the y -intercept.
 - c) Identify the zeros of the relation.
5. Consider the quadratic relation $y = x^2 - 6x - 16$.
 - a) Does the relation have a maximum or minimum value?
 - b) Identify the y -intercept.
 - c) Identify the zeros of the relation?
6. Consider the quadratic relation $y = x^2 - 12x + 20$.
 - a) Does the relation have a maximum or a minimum value?
 - b) Identify the y -intercept.
 - c) Identify the zeros of the relation.
7. Identify whether each parabola opens upward or downward, without graphing. Explain how you know.
 - a) $y = x^2 + 5x + 6$
 - b) $y = x^2 - 3x - 28$
 - c) $y = x^2 + 5x - 24$
 - d) $y = x^2 - 13x + 22$
8. Determine the maximum or minimum value of each quadratic relation in question 7.
9. A family restaurant has daily expenses that can be modelled by the quadratic relation $C = 4t^2 - 28t + 40$, where C represents the total cost in dollars, and t represents the time in hours the restaurant is open.
 - a) What is the minimum cost of running the restaurant each day?
 - b) What is the number of hours the restaurant is open for this minimum cost?
 - c) What is the cost per day when the restaurant is not open for business?