Name: _____ Date: _____

Put each point into the equation to make three equations, then solve them.

1. **$y = ax^2 + bx + c$ through $(-2, 7), (0, 1), (1, 4)$**

   (1) $c - 2b + 4a = 7$
   (2) $c = 1$
   (3) $c + b + a = 4$
   (4) $[(1) - (2)] \div 2$: $-b + 2a = 3$
   (5) $[(1) - (3)] \div 3$: $-b + a = 1$
   (6) (4) − (5): $a = 2$
   $b = 1$
   $c = 1$

2. **$y = ax^2 + bx + c$ through $(-2, 2), (0, 2), (3, 32)$**

3. **$y = ax^2 + bx + c$ through $(-2, -2), (2, 6), (4, 22)$**

4. **$y = ax^2 + bx + c$ through $(0, 5), (1, 5), (2, 7)$**

Systems of three equations · A parabola through three points — Answer key

1. (−2, 7), (0, 1), (1, 4) → a = 2, b = 1, c = 1

2. (−2, 2), (0, 2), (3, 32) → a = 2, b = 4, c = 2

3. (−2, −2), (2, 6), (4, 22) → a = 1, b = 2, c = −2

4. (0, 5), (1, 5), (2, 7) → a = 1, b = −1, c = 5