

Q1. (2022)

Step 1: Find the gradient of the first line.

The line passes through (2, 8) and (6, 15).

$$m = \frac{15 - 8}{6 - 2} = \frac{7}{4}$$

Step 2: Find the gradient of the perpendicular line.Perpendicular gradients multiply to give -1 .

$$m_2 = -\frac{4}{7}$$

Step 3: Use the points (0, 9) and (x, 17).

$$-\frac{4}{7} = \frac{17 - 9}{x - 0}$$

$$-\frac{4}{7} = \frac{8}{x}$$

Cross-multiply:

$$-4x = 56$$

$$x = -14$$

Final answer:

$x = -14$
