

4) Let $f(x)$ be a linear function whose graph passes through the points $(1, 4)$ and $(-3, 2)$.

(a) Determine the formula for the function.

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 2}{1 + 3} = \frac{2}{4} = \frac{1}{2}$$

Slope = $\frac{1}{2}$

$$f(x) = \frac{1}{2}(x - 1) + 4$$

(b)

$$f(x) = \frac{1}{2}(x - 1) + 4$$

$$0 = \frac{1}{2}(x - 1) + 4$$

$$0 = \frac{1}{2}x - \frac{1}{2} + 4$$

$$0 = \frac{1}{2}x + \frac{7}{2}$$

$$-7 = x + 7$$

$$-7 - 7 = x + 7 - 7$$

$$\boxed{x = -14}$$

(c)

