

GENERAL FORM OF LINEAR FUNCTIONS

Thu 15 Nov 2018

$$f(x) = a(x-h) + k = ax + b$$

$$\text{Ex. } g(x) = 2(x-3) + 1 = 2x - 6 + 1 = 2x - 5$$

$$\begin{aligned} h(x) &= -7(x+5) - 3 = -7x - 35 - 3 = -7x - 38 \\ &= -7(x - (-5)) + (-3) \end{aligned}$$

Example 1 $f(x) = 2(x-3) + 5 = 2x - 6 + 5 = 2x - 1$

$b = -\frac{21}{5} - 2 = -\frac{31}{5}$
 $a = \frac{1}{6}$ $h = \frac{21}{5}$
 $k = -2$

1) Find a, h, k, b

$$\begin{aligned} a &= 2 \\ h &= 3 \\ k &= 5 \\ b &= -1 \end{aligned}$$

Example 2: $f(x) = -11(x+3) + 40$

$$\begin{aligned} a &= -11 \\ h &= -3 \\ k &= 40 \\ b &= -11 \cdot 3 + 40 = 7 \end{aligned}$$

Example 3

$$\begin{aligned} f(x) &= -\frac{1}{2} \left(\frac{7}{5} - \frac{x}{3} \right) - 2 \\ &= \left(-\frac{1}{2} \right) \left(-\frac{1}{3} \right) \left(x - \frac{7 \cdot 3}{5} \right) - 2 \\ &\quad \left(-\frac{1}{5} \right) x + \frac{1}{2} \cdot \frac{21}{5} \\ &\quad -\frac{x}{5} + \frac{7}{5} \\ &= \frac{1}{6} \left(x - \frac{21}{5} \right) - 2 \end{aligned}$$

$$-\frac{21}{5} - \frac{2}{1} = -\frac{21}{5} - \frac{10}{5} = \frac{-31}{5}$$

$$\frac{1}{3} + \frac{2}{3}$$

$$\frac{1}{7} - \frac{3}{7}$$