

Activity: (a) 16

(b) 128

(c) $f(x) = 2^x$ where x is days

(d) $f(x) = 3^x$

Further Questions: $f(x) = 10 \cdot 2^x$

Not yet, but we will learn soon.

Examples: (1) $f(x) = 1000 \cdot 3^x$

(2) $f(x) = 5800 \cdot 12^x$

(3) 3-year growth factor = ~~$\frac{128}{20}$~~ $\frac{128}{20}$

1-year growth factor = $\left(\frac{128}{20}\right)^{1/3}$

(4) ^(a) $f(x+1)$ is the population after $x+1$ years.

(b) Growth rate = 0.4 so growth factor
is $1 + 0.4 = 1.4$

$$(5) (a) f(x) = 50(1.6)^x$$

$$(b) f(6) = 50(1.6)^6 = 838.86 \text{ rabbits}$$

or ≈ 839 rabbits as

Fractional rabbits make no sense.

Question:

$a = \text{growth factor} = \text{growth rate} + 1 = r + 1$

$$(6) f(x) = 10(0.8)^x$$

$$(7) (a) f(x) = 75(0.7)^x$$

$$(b) f(4) = 75(0.7)^4 = 18.01 \text{ mg}$$

$$(8) (a) \frac{1}{2} = a^{1600} \Rightarrow a = \left(\frac{1}{2}\right)^{1/1600} \text{ so } f(x) = 50 \cdot \left(\frac{1}{2}\right)^{x/1600}$$

$$(b) f(4000) = 50 \cdot \left(\frac{1}{2}\right)^{4000/1600} \approx 8.84 \text{ g}$$

$$(9) f(x) = C \left(\frac{1}{2}\right)^x$$