$$(10, 50)$$
$$(30, 25)$$
$$(x, y)$$

$$50 = a\left(2^{\cdot \frac{1}{20}}\right)^{10}$$

$$50 = a\, 2^{-1/2}$$

$$\frac{50}{2^{-1/2}} = a$$

$$50(2)^{1/2} = a$$

$$50\sqrt{2} = a$$

$$f(x) = a\, b^{x}$$

$$50 = a b^{10}$$
$$25 = a b^{30}$$

$$\frac{50}{25} = \frac{a b^{10}}{a b^{30}} = b^{-20}$$

$$2 = b^{-20}$$

$$\boxed{2^{-\frac{1}{20}} = b}$$

$$f(x) = \left(50\sqrt{2}\right) 2^{-\frac{x}{20}}$$

$$(10, 50)$$
$$(30, 25)$$

$$\left(\frac{25}{50}\right)^{\frac{1}{20}}$$

$$\div \left(\frac{1}{2}\right)^{\frac{1}{20}}$$

$$50 = a\left(\frac{1}{2}\right)^{\frac{10}{20}}$$

$$= 2^{-\frac{1}{20}} \rightarrow \text{this is } b$$

$f(x)$ $(0, 50)$

11 $(5, 20)$

$b = \left(\dfrac{20}{50}\right)^{\frac{1}{5}}$

$b = \left(\dfrac{2}{5}\right)^{1/5}$

$f(x) = a b^x$

$50 = a b^0$

$50 = a$

$f(x) = 50\left[\left(\dfrac{2}{5}\right)^{1/5}\right]^x$

$f(x) = 50 \left(\dfrac{2}{5}\right)^{\frac{x}{5}}$

$f(x) = 50 (0.4)^{\frac{x}{5}}$

36.

$$V(t) = \begin{cases} 80 & t < 0 \\ 80\left(\frac{3}{16}\right)^{\frac{t}{10}} & t \geq 0 \end{cases}$$

$(0, 80)$
$(10, 15)$

$$b = \left(\frac{15}{80}\right)^{\frac{1}{10}} = \left(\frac{3}{16}\right)^{\frac{1}{10}}$$

$$\frac{1}{10} = 80\left(\frac{3}{16}\right)^{t/10}$$

$$\frac{1}{800} = \left(\frac{3}{16}\right)^{t/10}$$

Note: Exponentials always grow faster than lins.

$$f(x) = \left(1 \times 10^6\right)x + 1$$

$$g(x) = 2^x$$

Q: If someone's gifts you $10,000
at birth.

it grows 9% every year.
How much will you have at 65?