

Serry Lunning, MarKeese, Erika p. 361 #41, 42, 47, 49, 51, 53

⑩ a) $1,500 = 3,000a^5$ $f(t) = 3000(.87)^t$

$$.5 = 3a^5$$

$$.5^{(1/5)} = .87$$

$$e^r = .87$$

$$r = \ln .87$$

$$r = -.139$$

b) $P(t) = 3,000(.87)^5$ $g(t) = 3000e^{-.1388t}$

$$P(t) \approx 1,495.26$$

c) They are the same

⑪ a) $6,000 = 3,000a^5$ $f(t) = 3,000(1.149)^t$

$$2 = a^5$$

$$2^{(1/5)} = 1.149$$

$$e^r = 1.149$$

$$r = \ln(1.149)$$

$$r = .1389$$

b) $g(t) = 3,000e^{.1389t}$ $g(t) = 6,000e^{.1389t}$

c) They are the same

⑫ a) 500

b) growing

Instantaneous growth = 45%

c) $f(t) = 500e^{.45t}$

$$f(t) = 1,929 \text{ fish}$$

41, 42, 47, 49, 51, 53

$$41 \text{ A } p(t) = 3000 \cdot a^5 = 1500$$

$$a^5 = .5$$

$$= .87055$$

c. graphs are the same

$$\text{B } g(t) = 3000 e^{-.1386 \cdot 5} = 1499.9$$

$$42 \text{ A } p(t) = 3000 \cdot a^5 = 6000$$

$$a = 1.148$$

c. graphs are the same

$$\text{B } g(t) = 3000 e^{.138 \cdot 5}$$

$$47 \text{ } f(t) = 500 e^{.45 \cdot t}$$

A 500

B increasing, 45%

$$\text{C } f(t) = 500 e^{.45 \cdot 3}$$

$$= 1928.7$$

Brendon + Taylor

19301

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41. $f(t) = 3000 \cdot 0.871^t$

42. $3,000 \cdot 0.75$

47. $a = 500$

$b =$ Instantaneous growth of 45% per hour

$c = 1,928.71$

49. $a = .52$ % and decreasing

$b = f(t) = 383,000(e^{-.52})^t$

51. $a = f(t) = 20(4)^t$ $a = 4$ $40 = 20a^5$

$b = g(t) = 20e^{t/5}$

$g(t) = 20(e^{1.6419})^5$

53. $a = f(t) = 22.5(1.353)^t$

$f(t) = 22.5(11.4)^t$

252.9

$\frac{252.9}{22.5} = \frac{22.5a^8}{22.5}$

11.24 = a^8

1.353

Hannah

p. 301

41. a.) $f(t) = (a)^t$
 $f(t) = 3000a^5 \rightarrow 1500 = \frac{3000a^5}{3000}$
 b.) $g(t) = (e)^{rt}$
 $g(t) = 3000e^{r(5)}$
 $\ln(5) = \frac{1500}{3000}$
 c.) Not the same \downarrow $a = .871$ $= f(t) = 3000(.871)^t$

42. a.) $f(t) = (a)^t$
 $6000 = 3000a^2$
 $2 = a^2$
 $a = 1.414$
 $f(t) = 3000(1.414)^t$
 b.) $g(t) = (e)^{rt}$
 $6000 = 3000e^{rs}$
 $2 = e^{rs}$
 $2e^{-rs} = 0$
 $g(t) = 3000e^t$
 c.) Not the same

47. $f(t) = 500e^{0.145t}$
 a.) 500
 b.) it's growing
 c.) $f(3) = 500e^{(0.145)(3)}$
 $= 1928.71$
 51. a.) $f(t) = (a)^t$
 $f(t) = 20a^{30}$
 b.) $g(t) = (e)^{rt}$

49. b.) $f(t) = (e)^{rt}$
 $f(t) = 383000e^{(0.0052)t}$
 a.) It's decreasing.
 -0.52%

