

$$35) \quad h(x) = \frac{2}{x-3}$$

$$f(x) = \frac{2}{x} \quad g(x) = x-3$$

$$\#19 \quad f(x) = x^2 + 4 \quad g(x) = \sqrt{x-1}$$

$$\begin{aligned}(f \circ g)(x) &= \\ f(\sqrt{x-1}) &= (\sqrt{x-1})^2 + 4 \\ &= x-1+4 \\ &= x+3\end{aligned}$$

$$(f \circ g)(1) = 1+3 = 4$$

$$\begin{aligned}(g \circ f)(x) &= \\ g(x^2+4) &= \sqrt{(x^2+4)-1} \\ &= \sqrt{x^2+3}\end{aligned}$$

$$(g \circ f)(1) = \sqrt{1^2+3} = \sqrt{4} = 2$$

Exponential Function 5

Penny example

- 1) 1¢ 2) 2¢ 3) 4¢ 4) 8¢
5) 16¢ 6) 32¢ 7) 64¢ 8) 1.28

$$f(x) = 2^{x-1}$$

exponential growth

$$y = 2^x$$

$$y =$$

exponential decay

$$y = \left(\frac{1}{2}\right)^x$$

$$y = 2^x$$

$$y = (-3)^x$$

$$x = 1$$

2

-3

$$x = 2$$

4

9

$$x = 3$$

8

-27

Exponential function Rules

$$f(x) = a^x$$

- 1) a (the base #) can never be negative
- 2) exponential growth is $a > 1$
- 3) exponential decay $0 < a < 1$

pg 872 example 5

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$

$$P = \$100000$$

$$r = .08 \quad A = 100000 (1 + .08)^t$$

$$n = 1 \quad A = 100000 (1.08)^t$$

$$A = 100000 (1.08)^t$$

$$t=0 \rightarrow A = 100000$$

$$t=5 \rightarrow A = 100000 (1.08)^5$$

$$\rightarrow A = \$146932.81$$

$$t=9 \rightarrow A = \$199900.46$$

$$N(t) = 3000 (2)^{t/20}$$

$$y = 150(.960)^t + 470$$

↑
1 - .04

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graph 11-3a odd

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