

Today's Learning Goal(s):

By the end of the class, I will be able to:

- a) Convert a percent to a decimal.
- b) Calculate the percent of a number.
- c) Evaluate exponential functions for a given value for x .
- d) Convert units of time from weeks to years, months to years, and days to years.

MCF 3MI

8.0 Getting Started – Unit 8

Date: May 28/18

Ex. 1: Convert each percent to a decimal.

- a) 29% b) 107% c) 0.4% d) 45% e) 59% f) 7.5% g) 100% h) 3.65%

$$= 0.29 \quad = 1.07 \quad = 0.004 \quad = 0.45 \quad = 0.59 \quad = 0.075 \quad = 1 \quad = 0.0365$$

Ex. 2: Determine each amount.

- a) 5% of 80 b) 3.8% of 240 c) 75% of 68 d) 7.25% of 2000

$$\begin{aligned} &= 0.05 \times 80 & &= 0.038 \times 240 & &= 0.75 \times 68 & &= 0.0725 \times 2000 \\ &= 4 & &= 9.12 & &= 51 & &= 145 \end{aligned}$$

Calculating a Restaurant Tip *Note: 15% is usually considered the MINIMUM tip percentage (in your head)*

- e) 15% of 40 f) 15% of 64 g) 15% of 85 h) 15% of 66

$$\begin{aligned} &= (10\% + 5\%) \times 40 & &= 6.40 + 3.20 & &= 8.50 + 4.25 & &= 6.6 + 3.3 \\ &= 4 + 2 & &= \$9.60 & &= 12.75 & &= \$9.90 \\ &= \$6 \end{aligned}$$

Ex. 3: Express each of the following as a fraction of a year.

- a) 2 weeks

$$\begin{aligned} &= \cancel{2 \text{ weeks}} \times \frac{1 \text{ year}}{\cancel{52 \text{ weeks}}} \\ &= \frac{1}{26} \text{ year} \end{aligned}$$

- b) 4 months

$$\begin{aligned} &= \cancel{4 \text{ months}} \times \frac{1 \text{ year}}{\cancel{12 \text{ months}}} \\ &= \frac{1}{3} \text{ year} \end{aligned}$$

- c) 140 days

$$\begin{aligned} &= \cancel{140 \text{ d}} \times \frac{1 \text{ year}}{\cancel{365 \text{ d}}} \\ &= \frac{28}{73} \text{ year} \end{aligned}$$

Ex. 4: Evaluate the following exponential functions. Remember BEDMAS!

a) If $f(x) = 4(3)^{2x}$, determine $f(-2)$.

$$\begin{aligned} f(-2) &= 4(3)^{2(-2)} \\ &= 4(3)^{-4} \\ &= 4\left(\frac{1}{3}\right)^4 \\ &= 4\left(\frac{1}{81}\right) \\ &= \frac{4}{81} \end{aligned}$$

b) If $f(x) = 3(4)^{2x}$, determine $f(3)$ and $f(-3)$.

$$\begin{aligned} f(3) &= 3(4)^{2(3)} \\ &= 3(4)^6 \\ &= 3(4096) \\ &= 12288 \end{aligned} \quad \left| \quad \begin{aligned} f(-3) &= 3(4)^{2(-3)} \\ &= 3(4)^{-6} \\ &= 3\left(\frac{1}{4}\right)^6 \\ &= 3\left(\frac{1}{4096}\right) \\ &= \frac{3}{4096} \end{aligned}$$

c) If $f(x) = 5(2)^{3x}$, determine $f(-2)$ and $f(2)$.

$$\begin{aligned} f(-2) &= 5(2)^{3(-2)} \\ &= 5(2)^{-6} \\ &= 5\left(\frac{1}{2}\right)^6 \\ &= \frac{5}{64} \end{aligned} \quad \left. \begin{aligned} f(2) &= 5(2)^{3(2)} \\ &= 5(2)^6 \\ &= 5(64) \\ &= 320 \end{aligned} \right\}$$

d) If $f(x) = 20000(1.02)^x$, determine $f(10)$ and $f(20)$.

$$\begin{aligned} f(10) &= 20000(1.02)^{10} & f(20) &= 20000(1.02)^{20} \\ &= 24379.888 & &= 29718.947 \\ &= 24379.89 & &= 29718.95 \end{aligned} \quad 48759$$

Study for the Unit 7 Summative!! (on Wed.)

Today's Homework: p. 452 # 5 – 10, 13