

Are there any Homework Questions you would like to see on the board?

pp. 444-445 # 1 – 7, 11 – 13 *ad, llc, 6e*

Today's Learning Goal(s):

By the end of the class, I will be:

- a) ready for the Unit 7 Summative.

Today's Homework:

p. 446 # 1 – 7

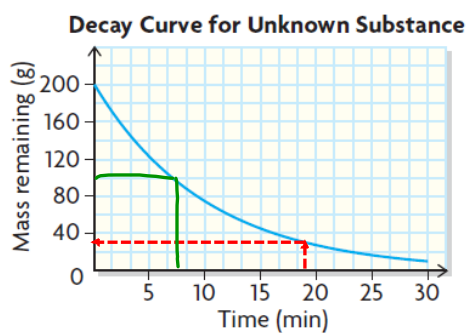
(Also worksheets on Website)

UNIT 7 SUMMATIVE

is Wednesday May 30, 2018

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6. A lab has 200 grams of an unknown radioactive substance. The scientists in the lab measure the mass of the substance each minute and plot the curve shown.



- a) How many grams of the substance remain after 18 min?
b) Use the graph to determine the half-life of the substance.

about 40 g
from the graph, the half-life appears to be about 7.5 minutes.

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2. Write as a single power. Express answers with positive exponents.

d) $(10(10^3)^{-1})^{-2}$

Handwritten: $(a b)^n = a^n b^n$

$$= (10 \cdot 10^{3 \times (-1)})^{-2}$$

$$= (10 \cdot 10^{-3})^{-2}$$

$$= (10^{1+(-3)})^{-2}$$

$$= (10^{-2})^{-2}$$

$$= 10^{-2 \times (-2)}$$

$$= 10^4$$

Handwritten: $(10)^{-2} (10^{-3})^{-2}$

$$= 10^{-2} (10^{-3 \times 2})$$

$$= 10^{-2} (10^{-6})$$

$$= 10^{-2+6}$$

$$= 10^4$$

6. Evaluate each expression without using a calculator.

e) $256^{-\frac{5}{4}}$

$$= \left(\frac{1}{256}\right)^{\frac{5}{4}}$$

$$= \frac{1}{(\sqrt[4]{256})^5}$$

$$= \frac{1}{(4)^5}$$

$$= \frac{1}{1024}$$

11. Simon has a Wayne Gretzky rookie hockey card. He bought it in 2000 for \$500 on e-Bay. He estimates that it will appreciate in value by 7% each year. The dealer told him the function $V(t) = 500(1 + 0.07)^t$ can be used to estimate the card's future value.

Handwritten: $P(n) = P_0(1+r)^n$

- a) Explain how the numbers in the equation are related to the situation.
- b) How much will the card be worth in 2020?
- c) How long will it take for the card to double its value?

b) $t = 2020 - 2000$

$$= 20$$

$$\therefore V(20) = 500(1.07)^{20}$$

$$\approx 1934.842$$

$$\approx \$1934.84$$

c) $V(t) = 1000$

$$1000 = 500(1.07)^n$$

$$\frac{1000}{500} = 1.07^n$$

$$2 = 1.07^n$$

Handwritten:

$$2 = 1.07^n$$

$$\log 2 = \log(1.07)^n$$

$$\log 2 = n \log(1.07)$$

Handwritten:

$$\frac{\log 2}{\log 1.07} = n$$

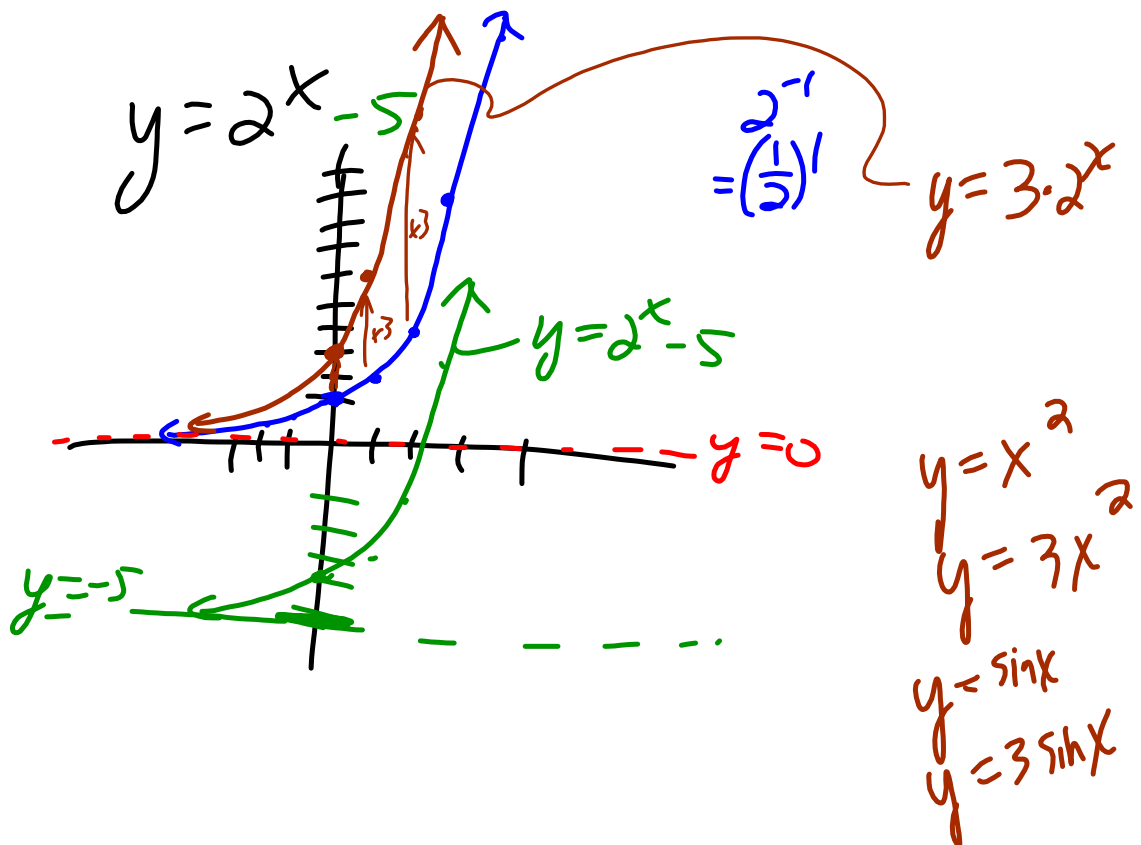
Handwritten:

$$\frac{5}{3} = n \left(\frac{1}{3}\right)$$

Handwritten:

$$n \approx 10.2447$$

n	Value
2	$1.07^2 = 1.1449$
3	$1.07^3 = 1.22$
6	1.5
10	1.96
11	2.10
10.5	2.03
10.3	2.007



$$\begin{array}{l} 100\% + 2\% \\ 1 + 0.02 \\ = 102\% \\ = 1.02 \end{array} \quad \Bigg| \quad \begin{array}{l} 1 - 0.02 \\ = 0.98 \end{array}$$