Bellwork   Alg 2   Friday, March 6, 2020
1. Match each equation with its graph.

a. _____ $y = 2(4)^x$ b. _____ $y = 6(0.5)^x$ c. _____ $y = 6(3)^x$ d. _____ $y = 2(0.7)^x$

e. _____ $y = 6(0.75)^x$ f. _____ $y = 2(0.8)^x$ g. _____ $y = 2(2)^x$
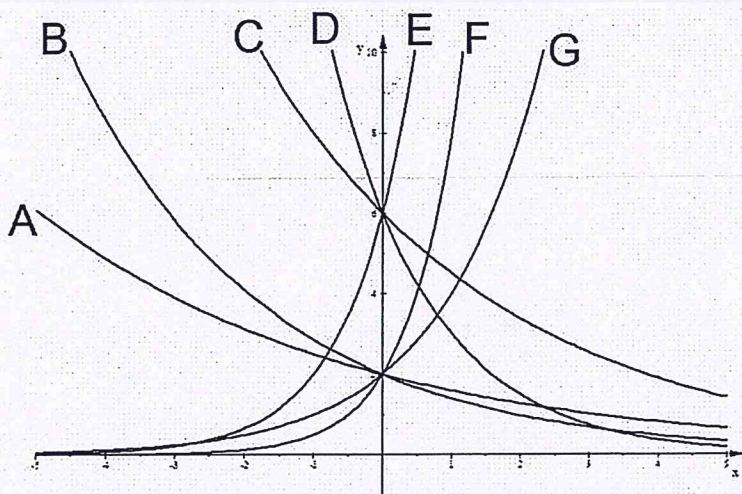
2. The half-life of a medicine is 1hr 10min. You are given a 180mg dose at 9:00am. Find the amount of medicine that is still present at 3:15pm. Round to the nearest hundredth.

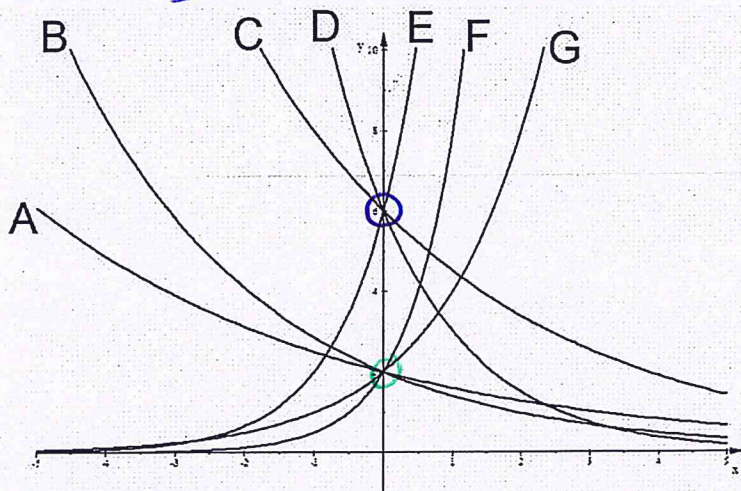3. Solve each equation. Round to the nearest hundredth.

a) $8 + 4(1.5)^{x-3} = 25$ b) $13 - 5\ln(2x + 7) = 44$

4. Write the equation of an exponential function that passes through these two points: $(3, 96)$ & $(6, 6144)$

1

1. Match each equation with its graph.
a. __F__ $y = 2(4)^x$ b. __D__ $y = 6(0.5)^x$ c. __E__ $y = 6(3)^x$ d. __B__ $y = 2(0.7)^x$

e. __C__ $y = 6(0.75)^x$ f. __A__ $y = 2(0.8)^x$ g. __G__ $y = 2(2)^x$

2. The half-life of a medicine is 1hr 10min. You are given a 180mg dose at 9:00am. Find the amount of medicine that is still present at 3:15pm. Round to the nearest hundredth.

$b = 0.5$

$$y = 180(0.5)^x$$

$x = $ # half lives
$$= \frac{375}{70}$$

$$\boxed{y = 4.39 \text{ mg}}$$

half life = 1 hr 10 min
$$= \boxed{70 \text{ min}}$$

TOTAL TIME :
9:00 am to 3:15 pm =
6hr and 15min

$\times 60$
$$360 + 15 = \boxed{375 \text{ min}}$$

3. Solve each equation. Round to the nearest hundredth.
a) $8 + 4(1.5)^{x-3} = 25$
$-8 \qquad -8$

$$\frac{4(1.5)^{x-3}}{4} = \frac{17}{4} \qquad \boxed{x = 6.57}$$

$$1.5^{x-3} = 4.25$$

$$\log_{1.5}(4.25) = x - 3$$

b) $13 - 5\ln(2x + 7) = 44$
$-13 \qquad -13$

$$\frac{-5\ln(2x+7)}{-5} = \frac{31}{-5} \qquad \boxed{x = -3.50}$$

$$\ln(2x+7) = -6.2$$

$$e^{-6.2} = 2x + 7$$

4. Write the equation of an exponential function that passes through these two points: (3,96) & (6,6144)

$(3, 96)$ $(6, 6144)$
  x Y   x Y

$$y = a \cdot b^x$$

$$96 = a \cdot b^3$$

$$\boxed{a = \frac{96}{b^3}}$$

$$6144 = a \cdot b^6$$

$$6144 = \frac{96}{b^3} b^6$$

$$\frac{6144}{96} = \frac{96 b^3}{96}$$

$$\sqrt[3]{64} = \sqrt[3]{b^3}$$

$$\boxed{b = 4}$$

$$a = \frac{96}{4^3} \Rightarrow \boxed{a = 1.5}$$

$$\boxed{y = 1.5(4)^x}$$

1