STATION A

1. Evaluate the following using exponent laws (write your final answer with positives exponents only).

a. $\left(\dfrac{2}{5}\right)^{-3}$

b. $\sqrt[5]{\dfrac{1}{32}}^{\,2}$

c. $16^{\frac{3}{4}} + \sqrt[3]{8}$

d. $\dfrac{2^3 - 2^{-3}}{2^2 \div 2^4}$

STATION B

1. Simplify the following using exponent laws (write your final answer with positives exponents only).

a. $\left(2^{x+1}\right)\left(4^{x+1}\right)\left(8^{x+1}\right) \div 64^{x}$

b. $\sqrt{\dfrac{x^{3}}{\sqrt{x}}}$

c) $\left(\dfrac{3x^{2}}{y^{-1}}\right)^{-2}\left(\dfrac{2y^{2}}{3x}\right)^{3}$

d) $\left(\dfrac{9a^{3}b^{-5}c^{2}}{ab^{-1}}\right)^{-\frac{1}{2}} \div \left(\dfrac{b^{3}c}{2a}\right)^{3}$

STATION C

1.

Solve the following using the exponent rules.

$$3^{x-1} = 27^{2x+3} \qquad 81^{x+3} = 9\sqrt{3} \qquad 3^{x+2} + 3^x = 270$$

STATION D

1. HCG, a chemical found in pregnant women, doubles every 55 hours for the first three months of pregnancy. The level of HCG is 5 mIU/ml in a women that is 3 weeks pregnant. How much HCG is there in her blood when she is 11 weeks pregnant?

2. Thorium-227 has a half-life of 18.4 days. How much time will a 50-mg sample take to decompose to 12.5 mg?

STATION E

1.

Relation	Domain	Range
$y = 3^{x+2} - 1$		

2. Complete the table.

Original Function	Equation of Transformed Function	Transformations (in order)
$y=2^x$		• Reflection in the y-axis • Vertical stretch by a factor of 7 • Horizontal translation left 3 • Vertical translation down 5

3. Given the exponential function $f(x) = 30\,(2)^{3x} + 5$

1. The equation of the asymptote _____
2. The y-int or original amount _____
3. The transformations occurring:

STATION F

Annika was working with an expression of the form $(\text{something})^{-3}$. Partway down the page you see this $\dfrac{2\left(x^2 y\right)^{12}}{125x}$. What expression could she have been working with?

STATION G

1. State the domain and range and find an equation for the exponential equation.
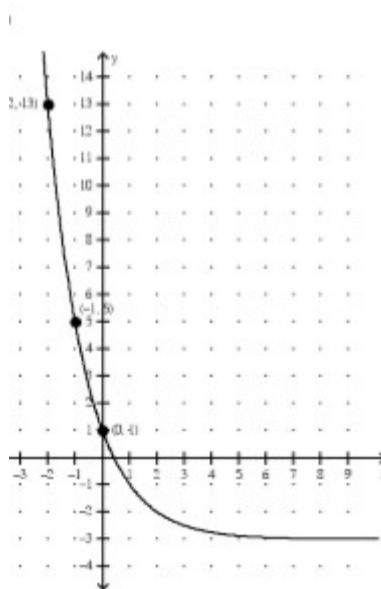
2. Graph each of the following:

a) $f(x) = -2^{2x+6}$

b) $f(x) = \left(\frac{1}{3}\right)^{2x}$

c) $f(x) = -3(5)^{-x}$