

PC12 LG 3A (Formative Assessment)

Marking Teacher: _____

Name: _____

Student #: _____

1. Write the equation of the function that results from the following set of transformations: $f(x) = 4^x$ is stretched (*EXPANDED*) vertically by a factor of 2, stretched (*COMPRESSED*) horizontally by a factor of $\frac{1}{3}$, reflected in the y-axis, and translated 7 units up and 6 units to the left.

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2. Describe in words how the function $y = \left(\frac{1}{5}\right)^x$ can be transformed into the function: $y - 1 = -6\left(\frac{1}{3}\right)^{2x-8}$.

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3. Given the function $y = -4(2)^{3x-3} + 5$ find each of the following:

- a) equations of any asymptote(s)
- b) domain and range
- c) x-intercepts and y-intercepts if they exist

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4. The function $T = 190\left(\frac{1}{2}\right)^{\frac{t}{10}}$ can be used to determine the length of time t , in hours, that milk will remain fresh where T is the storage temperature in degrees Celsius. How long will milk keep fresh at 19 degrees Celsius?

5. Solve algebraically: $25^{2x+1} = 125^{4-3x}$.

6. Solve algebraically: $\left(\frac{1}{8}\right)^{4x-1} = 16^{2x+5}$

7. A certain bacteria grew from a population of 100 to a population of 3200 in 8 hours. Find the doubling period of this bacterium.

8. If 12.5% of a sample of I-235 remains after 6 minutes, what is the half life of I-235?

9. Solve for x rounding your answer to 2 decimal places: $5^{x-2} = 3^{x+1}$.

PC12 LG 3B (Formative Assessment)

Marking Teacher: _____

Name: _____

Student #: _____

1. Write the equation of the function that results from the following set of transformations: $f(x) = \left(\frac{1}{3}\right)^x$ is stretched (*COMPRESSED*) vertically by a factor of $\frac{1}{5}$, stretched (*EXPANDED*) horizontally by a factor of 4, reflected in the x-axis, and translated 8 units down and 9 units to the right.

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2. Describe in words how the function $y = 3^x$ can be transformed into the function: $y + 5 = -4(3)^{5x+10}$.

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3. Given the function $y = 3\left(\frac{1}{2}\right)^{2x+4} - 1$ find each of the following:

a) equations of any asymptote(s)

b) domain and range

c) x-intercepts and y-intercepts if they exist

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4. The function $T = 190\left(\frac{1}{2}\right)^{\frac{t}{10}}$ can be used to determine the length of time t , in hours, that milk will remain fresh where T is the storage temperature in degrees Celsius. How long will milk keep fresh at 25 degrees Celsius?

5. Solve algebraically: $9^{2x+5} = 27^{5-3x}$.

6. Solve algebraically: $\left(\frac{1}{25}\right)^{6x-1} = 125^{2x-3}$

7. A certain bacteria grew from a population of 400 to a population of 10800 in 10 hours. Find the tripling period of this bacterium.

8. If the half-life of a sample of U-239 is 15 seconds, how long will it take for a sample to decay to 12.5% of its initial weight?

9. Solve for x rounding your answer to 2 decimal places: $6^{x-3} = 4^{x+2}$.