Your signature_____

Answers without suffcent work will not receive full credit.

Solve.

1) $x^2 + y^2 = 36$
$x^2 - y^2 = 36$

Solve, finding all solutions in [0, 2π).

2) $2 \tan^2 x - 3 \sec x = 0$

Solve the exponential equation. Round to three decimal places when necessary.

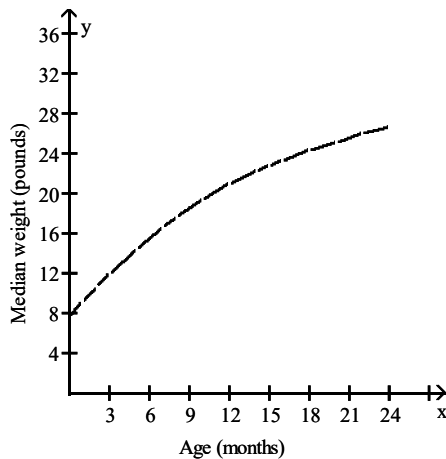3) $e^x + e^{-x} = 8$

Evaluate

4) $\lim\limits_{x \to -7} \dfrac{x^2 - 49}{x - 7}$

Solve the problem.

5) The graph shows the median weight of girls between the ages of 0 and 24 months.

Use the graph to find the average growth rate of a typical girl during the first year of her life. Give your answer in pounds per month. Support your answer.

Using one of the definitions of the derivative, find the derivative of the function and write it as a function and evaluate the derivative at the given x–value.

6) $f(x) = \dfrac{8}{x}$ at $x = -1$

Support your answer.

7) Is the function given by $f(x) = \dfrac{x + 5}{x^2 - 11x + 30}$ continuous at $x = 5$? Why or why not?

Using one of the shortcut rules, find the derivative of the function and evaluate the derivative at the given x–value.

8) $f(x) = \dfrac{1}{5}x - \dfrac{1}{2}$ at $x = 10$

Using the shortcut rules, find the derivative of the function and then write an equation of the tangent line to the graph of $y = f(x)$ at the point on the graph where x has the indicated value.

9) $f(x) = (-4x^2 + 3x + 4)(4x + 3)$, $x = 0$

10) $f(x) = \dfrac{-2x^2 + 6}{-3x - 2}$, $x = 0$