Name_____ Date_____

Formative Assessment Rates of Change, Slopes of lines, Equation of tangent line

Use the function $f(x) = -2(x-5)^3 + 4$ and the point P, given by x = 6 to answer the following questions

1. Determine the slope of the secant PQ when Q has x value 7. (Approximate to four decimal places)

    m of PQ =_____

2. What does this slope represent related to the rate of change?

3. Determine the slope of the secant PT when T has x value 6.01. (Approximate to four decimal places)

    m of PT =_____

4. What does this slope of PT represent related to the rate of change?

5. If we were to find the slope of PW with W = 6.0001, then this slope would have two distinct purposes. Name them and be specific

    _____

    _____

6. Write the equation of the line that best approximates the tangent line to f(x) at P in point slope form
    Recall y = m(x-x1)+y1 is point slope form (modified)

Use the function $g(x) = \ln(1 + x^3)$ and the point P, given by x = 0 to answer the following questions

7. Determine the slope of the secant PQ when Q has x value 1. (Approximate to four decimal places)

   m of PQ =_____

8. What does this slope represent related to the rate of change?

9. Determine the slope of the secant PT when T has x value 0.01. (Approximate to four decimal places)

   m of PT =_____

10. What does this slope of PT represent related to the rate of change?

11. Write the equation of the line that best approximates the tangent line to f(x) at P in point slope form
    Recall y = m(x-x1)+y1 is point slope form (modified)

$$\lim_{x \to 1} \left(\frac{g(x) - g(1)}{x - 1} \right)$$

12. Verbally explain what each of these   tells us in the context of the function g(x) be specific!

$$\lim_{h \to 0} \left(\frac{g(h + 1) - g(1)}{h} \right)$$

Name_____ Date_____

Formative Assessment Rates of Change, Slopes of lines, Equation of tangent line

Use the function $f(x) = 4(x-6)^3 + 3$ and the point P, given by x = 7 to answer the following questions

1. Determine the slope of the secant PQ when Q has x value 8. (Approximate to four decimal places)

    m of PQ =_____

2. What does this slope represent related to the rate of change?

3. Determine the slope of the secant PT when T has x value 7.01. (Approximate to four decimal places)

    m of PT =_____

4. What does this slope of PT represent related to the rate of change?

5. If we were to find the slope of PW with W = 7.0001, then this slope would have two distinct purposes. Name them and be specific

    _____

    _____

6. Write the equation of the line that best approximates the tangent line to f(x) at P in point slope form Recall y = m(x-x1)+y1 is point slope form (modified)

Use the function $g(x) = \ln(8 + x^3)$ and the point P, given by x = 2 to answer the following questions

7. Determine the slope of the secant PQ when Q has x value 3. (Approximate to four decimal places)

    m of PQ =_____

8. What does this slope represent related to the rate of change?

9. Determine the slope of the secant PT when T has x value 2.01. (Approximate to four decimal places)

    m of PT =_____

10. What does this slope of PT represent related to the rate of change?

11. Write the equation of the line that best approximates the tangent line to f(x) at P in point slope form
    Recall y = m(x-x1)+y1 is point slope form (modified)

$$\lim_{x \to 4} \left(\frac{g(x) - g(4)}{x - 4} \right)$$

12. Verbally explain what each of these   tells us in the context of the function g(x) be specific!

$$\lim_{h \to 0} \left(\frac{g(h + 4) - g(4)}{h} \right)$$

Name_____ Date_____

Formative Assessment Rates of Change, Slopes of lines, Equation of tangent line

Use the function $f(x) = 5(x+8)^3 - 2$ and the point P, given by x = -1 to answer the following questions

1. Determine the slope of the secant PQ when Q has x value 0 (Approximate to four decimal places)

    m of PQ =_____

2. What does this slope represent related to the rate of change?

3. Determine the slope of the secant PT when T has x value -0.99. (Approximate to four decimal places)

    m of PT =_____

4. What does this slope of PT represent related to the rate of change?

5. If we were to find the slope of PW with W = -0.999, then this slope would have two distinct purposes. Name them and be specific

    _____

    _____

6. Write the equation of the line that best approximates the tangent line to f(x) at P in point slope form
    Recall y = m(x-x1)+y1 is point slope form (modified)

Use the function $g(x) = \ln(27 + x^3)$ and the point P, given by x = 1 to answer the following questions

7. Determine the slope of the secant PQ when Q has x value 2. (Approximate to four decimal places)

    m of PQ =_____

8. What does this slope represent related to the rate of change?

9. Determine the slope of the secant PT when T has x value 1.01. (Approximate to four decimal places)

    m of PT =_____

10. What does this slope of PT represent related to the rate of change?

11. Write the equation of the line that best approximates the tangent line to f(x) at P in point slope form
    Recall y = m(x-x1)+y1 is point slope form (modified)

$$\lim_{x \to 5} \left(\frac{g(x) - g(5)}{x - 5} \right)$$

12. Verbally explain what each of these   tells us in the context of the function g(x) be specific!

$$\lim_{h \to 0} \left(\frac{g(h + 5) - g(5)}{h} \right)$$

Name_____ Date_____

Formative Assessment Rates of Change, Slopes of lines, Equation of tangent line

Use the function $f(x) = 5(x+8)^3 - 2$ and the point P, given by x = -1 to answer the following questions

1. Determine the slope of the secant PQ when Q has x value 0 (Approximate to four decimal places)

    m of PQ =_____

2. What does this slope represent related to the rate of change?

3. Determine the slope of the secant PT when T has x value -0.99. (Approximate to four decimal places)

    m of PT =_____

4. What does this slope of PT represent related to the rate of change?

5. If we were to find the slope of PW with W = -0.999, then this slope would have two distinct purposes. Name them and be specific

    _____

    _____

6. Write the equation of the line that best approximates the tangent line to f(x) at P in point slope form
    Recall y = m(x-x1)+y1 is point slope form (modified)

Use the function $g(x) = \ln(64 + x^3)$ and the point P, given by x = 2 to answer the following questions

7. Determine the slope of the secant PQ when Q has x value 3. (Approximate to four decimal places)

   m of PQ =_____

8. What does this slope represent related to the rate of change?

9. Determine the slope of the secant PT when T has x value 2.01. (Approximate to four decimal places)

   m of PT =_____

10. What does this slope of PT represent related to the rate of change?

11. Write the equation of the line that best approximates the tangent line to f(x) at P in point slope form
    Recall y = m(x-x1)+y1 is point slope form (modified)

$$\lim_{x \to 6} \left(\frac{g(x) - g(6)}{x - 6} \right)$$

12. Verbally explain what each of these   tells us in the context of the function g(x) be specific!

$$\lim_{h \to 0} \left(\frac{g(h + 6) - g(6)}{h} \right)$$

Formative Assessment given on 8-21-19

$f(x) = 4(x-6)^3 + 3 \quad as \ x \to 7$

$g(x) = \ln(8 + x^3) \qquad as \ x \to 2$

Formative Assessment given on 8-21-19

$f(x) = 5(x+8)^3 - 2 \quad as \ x \to -1$

$g(x) = \ln(27 + x^3) \qquad as \ x \to 1$

Formative Assessment given on 8-21-19

$f(x) = -2(x-5)^3 + 4 \quad as \ x \to 6$

$g(x) = \ln(1 + x^3) \qquad as \ x \to 0 \ \text{(typo version)}$

Formative Assessment given on 8-21-19

$f(x) = 5(x+8)^3 - 2 \quad as \ x \rightarrow -1$

$g(x) = \ln(64 + x^3) \quad as \ x \rightarrow 2$