Evaluating limits worksheet kuta

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Piecewise Functions Quiz

I. Function notation - answer the following:

a)

$$f(x) = \begin{cases} x+2, & \text{if } x < 3 \\ x+7, & \text{if } x \geq 3 \end{cases}$$

$f(-5) =$

$f(3) =$

$f(5) =$

b)

$$g(x) = \begin{cases} 3x+2, & \text{if } x < -6 \\ 5, & \text{if } -6 \leq x < 10 \\ x^2, & \text{if } x \geq 10 \end{cases}$$

$g(0) =$

$g(-6) =$

$g(10) =$

c)

$$j(x) = \begin{cases} -10, & \text{if } x < 0 \\ 0, & \text{if } x = 0 \\ 10, & \text{if } x > 0 \end{cases}$$

$j(-25) =$

$j(1/2) =$

$j(0) =$

d)

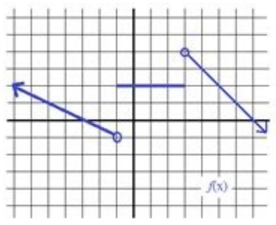
$$h(t) = \begin{cases} \sqrt{(-t)}, & \text{if } t < 0 \\ 5, & \text{if } 0 \leq t < 5 \\ -2x, & \text{if } 5 \leq t \end{cases}$$

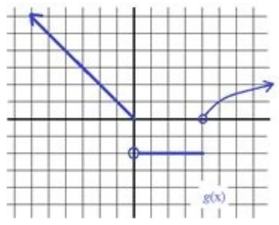
$h(-4) =$

$h(5) =$

$h(10) =$

II. Using a graph -- answer the following





$f(-5) =$

$f(-1) =$

$f(1) =$

$f(7) =$

$g(-3) =$

$g(4) =$

$g(5) =$

$g(-20) =$

Rules of Thumb with infinite limits

- The product of a finite limit and an infinite limit is infinite if the finite limit is not 0.

$$a \cdot \infty = \begin{cases} \infty & \text{if } a > 0 \\ -\infty & \text{if } a < 0. \end{cases}$$

$$a \cdot (-\infty) = \begin{cases} -\infty & \text{if } a > 0 \\ \infty & \text{if } a < 0. \end{cases}$$

- The product of two infinite limits is infinite.

$$\infty \cdot \infty = \infty$$
$$\infty \cdot (-\infty) = -\infty$$
$$(-\infty) \cdot (-\infty) = \infty$$

- The quotient of a finite limit by an infinite limit is zero:

$$\frac{a}{\infty} = 0.$$

Name: _____

Evaluating Rational Functions

Sheet 1

A) Evaluate each function at the specified value.

1) $f(x) = \frac{7}{2x-4}$; $x = -2$

2) $f(x) = \frac{x-6}{x+4}$; $x = 1$

B) Evaluate each function.

1) $f(x) = \frac{x^2 - 8x}{3x+15}$; find $f(10)$

2) $f(x) = \frac{3}{9x^2-7}$; find $f(0)$

C) If $f(x) = \frac{10x}{-x-5}$; find the following.

1) $f(-8) =$ _____

2) $f(3) =$ _____

3) $f(9) =$ _____

4) $f(-7) =$ _____

D) If $f(x) = \frac{x+1}{(x-2)(x+3)}$; find the following.

1) $4f(-2) + 8f(-4) =$ _____

2) $-5f(7) - 9f(-1) =$ _____

3) $\frac{-6f(-6)}{f(5)} =$ _____

4) $7f(4) \times 3f(0) =$ _____

E) What is the value of $f(-3)$, if $f(x) = \frac{9}{x^2+6}$?

i) $\frac{3}{5}$ ii) $-\frac{3}{5}$ iii) -9 iv) 3

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Math 11 Name_____

Long and Synthetic Division Worksheet Date_____ Period____

Divide.

1) $(r^2 + 6r + 15) \div (r + 5)$

2) $(r^2 + 10r + 13) \div (r + 7)$

3) $(n^3 - 5n^2 - 33n - 37) \div (n - 9)$

4) $(x^3 + 6x^2 - 30x + 102) \div (x + 10)$

5) $(2v^3 - 20v^2 + 56v - 46) \div (v - 6)$

6) $(8r^3 - 49r^2 - 45r - 36) \div (r - 7)$

7) $(m^3 - 20) \div (m - 3)$

8) $(2k^3 - 13k^2 - 77k + 60) \div (k - 10)$

9) $(5x^3 + 11x^2 + 26x + 26) \div (5x + 6)$

10) $(-18a + 3a^3 + 9 + 6a^2) \div (-3 + 3a)$

11) $(10r^3 + 50r^2 - 60) \div (10r - 10)$

12) $(9a^3 + 60a^2 - 18a - 40) \div (9a + 6)$

13) $(3r^3 + 11r^2 - 6r - 18) \div (r + 4)$

14) $(2n^3 + 62n - 26n^2 + 4) \div (2n - 6)$

15) $(26 - 43k - 83k^2 + 9k^3) \div (7 + 9k)$

16) $(2x^3 + 17x^2 + 38x + 15) \div (5 + 2x)$

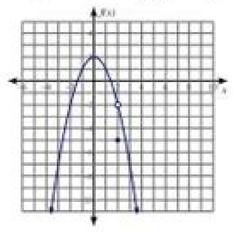
Kuta Software - Infinite Calculus Name_____

Evaluating Limits

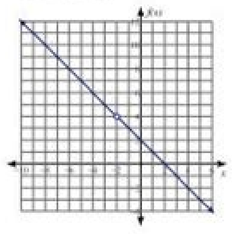
Date_____ Period____

Evaluate each limit.

1) $\lim_{x \to 2} f(x)$, $f(x) = \begin{cases} -x^2 + 2, & x \neq 2 \\ -5, & x = 2 \end{cases}$

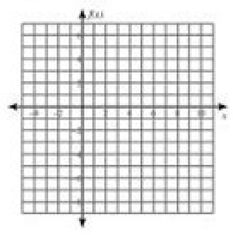


2) $\lim_{x \to -2} -\dfrac{x^2 - 4}{x + 2}$

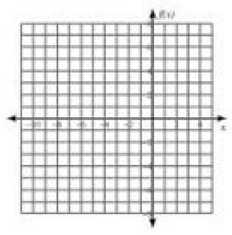


Evaluate each limit. You may use the provided graph to sketch the function.

3) $\lim_{x \to 3} \dfrac{x^2 - 7x + 12}{x - 3}$



4) $\lim_{x \to -3} \dfrac{x + 3}{x^2 + 2x - 3}$



Evaluate each limit.

5) $\lim_{x \to 0} f(x)$, $f(x) = \begin{cases} x + 1, & x \neq 0 \\ 2, & x = 0 \end{cases}$

6) $\lim_{x \to 3} f(x)$, $f(x) = \begin{cases} 2 + \dfrac{x}{2}, & x \neq 3 \\ 2, & x = 3 \end{cases}$

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Unit 12 Trigonometry Homework 5 Law Of Sines Answer Key Infinite Precalculus covers all typical Precalculus material and more: trigonometric functions, equations, and identities; parametric equations; polar coordinates; vectors; limits; and more. Over 100 individual topics extend skills from Algebra 2 and introduce Calculus. Extrema, intervals of increase and decrease Transformations of graphs Graphs, real zeros, and end behavior of polynomial functions Dividing polynomial functions The Remainder Theorem and bounds of real zeros Writing polynomial functions and conjugate roots Complex zeros and The Fundamental Theorem of Algebra Graphs of rational functions Graphing exponential functions Exponential equations not requiring logarithms Logarithms and exponents as inverses Writing logs in terms of others Exponential equations requiring logarithms Logarithmic equations, simple Logarithmic equations, hard Graphing logarithmic functions Right triangle trig: Finding ratios Right triangle trig: Finding angles and sides Trig functions of any angle Equations with factoring and fundamental identities Sum and Difference Identities Multiple-Angle Identities Product-to-Sum Identities Equations and Multiple-Angle Identities Area and Laws of Sines and Cosines Graphs of polar equations Polar and rectangular forms of equations Polar forms of conic section Complex numbers in polar form Points in three dimensions Multivariable linear systems and row operations Partial fraction decomposition Parabolas, graphing & properties Parabolas, writing equations Circles, graphing & properties Circles, writing equations Ellipses, graphing & properties Ellipses, writing equations Hyperbolas, graphing & properties Hyperbolas, writing equations Rotations of conic sections Sample spaces and The Fundamental Counting Principle Permutations vs combinations Probability of independent and dependent events, word problems Probability of independent and dependent events Probability of mutually exclusive events, word problems Probability of mutually exclusive events Probability with permutations and combinations Arithmetic and geometric mean Limits by direct evaluation Limits at kinks and jumps Limits at removable discontinuities Limits at essential discontinuities Definition of the derivative Instantaneous rates of change Power rule for differentiation Approximating area under a curve Area under a curve by limit of sums

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