

Instructions

- Complete the problems as if this were an actual test.
 - 50-60 minutes of uninterrupted time. (this means no phones, Netflix, snapchat, etc....I promise you will survive 😊)
 - No help from notes, friends, google, etc.
- After you have completed the problems, grade your test using the key provided.
- Try extra problems similar to the ones you missed until you feel like you understand those concepts.

Secondary Math III
Unit 5 Practice Test

Name _____

Period _____

1. Which function has a graph with a hole?

a. $f(x) = \frac{x-5}{x^2+25}$

b. $g(x) = \frac{x^2-3x-28}{x+4}$

c. $h(x) = \frac{x^2+3x-28}{x+4}$

d. $k(x) = \frac{x}{x^2-25}$

2. Which function has a vertical asymptote at $x = 2$ and a horizontal asymptote at $y = \frac{3}{4}$?

a. $f(x) = \frac{3x}{4x-8}$

b. $g(x) = \frac{x+3}{x^2-4}$

c. $h(x) = \frac{3x}{x-2}$

d. $k(x) = \frac{x}{x-2}$

3. What is the least common denominator (LCD) of the rational expressions: $\frac{7}{x+4}$, $\frac{5+x}{4}$ and $\frac{x}{x^2-16}$?

4. Perform the operation $\frac{12x^2+24x}{x^2-9x+18} \cdot \frac{x^2-3x-18}{5x+10}$?

5. Perform the operation $\frac{x}{x^2} - \frac{1}{7x}$?

6. What is the domain of the function $f(x) = \frac{9x+4}{x-3}$?

Simplify, multiply, divide, add or subtract as indicated. List any restrictions on the variable and simplify answers where possible.

7. $\frac{5x^3+45x^2}{x^2+5x-36}$

8. $\frac{3x-4}{x^2-25} + \frac{5}{x-5}$

9. $\frac{x-\frac{36}{x}}{1+\frac{6}{x}}$

10. $\frac{x^2+9x}{x+8} \div \frac{x^2+12x+27}{x^2-64}$

Solve each equation. List any restrictions on the variable.

11. $x - \frac{35}{x} = -2$

12. $\frac{x+6}{x-4} = \frac{8}{9}$

Find the following and draw the graph of the function. Be sure to draw asymptotes as dashed lines and holes as open circles. (Hint: there is a hole):

13. $f(x) = \frac{3x+24}{x^2+3x-40}$

Simplified form _____

Vertical asymptote(s): _____

Horizontal asymptote: _____

Hole: _____

Intercepts: _____

additional points: _____

