Happy New Year!!

What Questions do you have from the midcourse review?

We will take a practice midcourse test and go over answers.

Midcourse Questions? Get out your answers from the practice midcourse!
\[ f^{-1}(x) = \frac{57 + 4n - 4}{57 + (n-1)4} \]
\[ a_n = a_1 + (n-1)d \]
\[ x = \frac{8}{3}, \frac{5}{3} \]
\[ x = 2 \pm \frac{\sqrt{5}}{3} \]
\[ f^{-1}(x) = \frac{(2, -3)(5, 4), (5, 4)}{(1, 0), (1, 0)} \]
\[ |8 + x| = 2x - 3 \]
\[ y = \frac{y_1}{x_1} \]
\[ x = 11 \]
\[ 2 \pm \frac{\sqrt{5}}{3} \]
\[ x = \frac{18}{3} = \frac{4}{3} \]
\[ x = \frac{3}{2} - \frac{3}{2} = \frac{3}{2} \]
\[ x = \frac{8}{3} \pm \frac{\sqrt{5}}{3} \]
\[ (x+4)(x-2i)(x+2i) \]
\[ (x+4)(x-2i)(x+2i) \]
\[ (x+4)(x^2 - 4x + 5) \]
\[ x^2 - 11x + 20 \]
\[ i = (-1) \]
\[ \sqrt[3]{21} \]
\[ \sqrt[3]{521} \]
\[ x = 1 \]
\[ (2, -3)(5, 4) \]
\[ f^{-1}(x) = \frac{57(5 + 4n) - 4}{57 + (n-1)4} \]
\[ a_n = a_1 + (n-1)d \]
\[ \sqrt[3]{21} \]
\[ \sqrt[3]{521} \]
\[ x = 1 \]
\[ (2, -3)(5, 4) \]
Test Corrections: MUST complete #12 Mathxl & redo your incorrect test questions.

1) Rework the problem. Show all work and circle final answer. I don't want a multiple choice letter as an answer!
2) If there is no work, explain why the answer is the correct answer. Be very detailed!
3) State your original answer (NOT THE LETTER CHOICE BUT THE ACTUAL VALUE!)
4) Explain in detail why you answered incorrectly. I did not know how to do it or I got mixed up is not an explanation. If you did not know how to do it you must show/work a problem from your notes or mathxl that you relearned from in order to redo this test question.

Graph the following reciprocal functions on your graphing calculator.
How does the vertical asymptote and horizontal asymptote and domain/range change?
What is the restricted value or excluded?
Why is that value restricted?

1) \( f(x) = \frac{1}{x - 3} \)
2) \( f(x) = \frac{1}{x - 5} \)

\( VA: x = 3 \) shifted left
\( VA: x = 0 \) same
down

\( HA: y = 0 \) same
cannot divided by 0

\( HA: y = -5 \) same
down

\( restricted: x = 3 \)
\( restricted: x = 0 \)
Writing Functions

1. The reciprocal parent function is translated 4 units right and 3 units down, then reflected across the x-axis. Write an equation to represent the new function. Identify the asymptotes.

\[ f(x) = \frac{a}{x-h} + k \]

\[ f(x) = \frac{-1}{x-4} - 3 \]

\[ VA: x=4 \]

\[ HA: y=-3 \]

2. The reciprocal parent function is translated 7 units up and 1 unit left, then vertically stretched by a factor of 2. Write an equation to represent the new function. Identify the asymptotes.

\[ f(x) = \frac{2}{x+3} + 7 \]

\[ VA: x=-1 \]

\[ HA: y=7 \]

3. A reciprocal function has a vertical asymptote located at \( x = -2 \) and a horizontal asymptote located at \( y = 5 \). Write an equation that could represent this function.

\[ f(x) = \frac{5}{x+2} + 5 \]

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Directions: Graph each function. Identify the domain, range and asymptotes.

4. \( f(x) = \frac{1}{x} - 2 \)

![Graph of f(x) = 1/(x) - 2]

Domain: \( \{x \mid x \neq 0\} \)
Range: \( \{y \mid y \neq 1\} \)
VA: \( x = 0 \)
HA: \( y = 1 \)

5. \( f(x) = \frac{1}{x + 3} \)

![Graph of f(x) = 1/(x+3)]

Domain: \( \{x \mid x \neq -3\} \)
Range: \( \{y \mid y \neq 0\} \)
VA: \( x = -3 \)
HA: \( y = 0 \)

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Directions: Graph each function. Identify the domain, range and asymptotes.

6. \( f(x) = \frac{4}{x} + 1 \)

![Graph of f(x) = 4/x + 1]

Domain: \( \{x \mid x \neq 0\} \)
Range: \( \{y \mid y \neq 4\} \)
VA: \( x = 0 \)
HA: \( y = 1 \)

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7. \( f(x) = \frac{3}{x - 2} - 2 \)

![Graph of f(x) = 3/(x-2) - 2]

Domain: \( \{x \mid x \neq 2\} \)
Range: \( \{y \mid y \neq 3\} \)
VA: \( x = 2 \)
HA: \( y = -2 \)

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Directions: Graph each function. Identify the domain, range and asymptotes.

8. \( f(x) = \frac{2}{x + 4} \)

![Graph of f(x) = 2/(x+4)]

Domain: \( \{x \mid x \neq -4\} \)
Range: \( \{y \mid y \neq 2\} \)
VA: \( x = -4 \)
HA: \( y = 0 \)

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9. \( f(x) = \frac{-1}{x - 5} \)

![Graph of f(x) = -1/(x-5)]

Domain: \( \{x \mid x \neq 5\} \)
Range: \( \{y \mid y \neq -1\} \)
VA: \( x = 5 \)
HA: \( y = 0 \)

Jan 1-6:10 PM
Directions: Graph each function. Identify the domain, range and asymptotes.

8. \( f(x) = \frac{2}{x+4} - 7 \)

- **Domain:** All real numbers except \(-4\)
- **Vertical Asymptote (VA):** \(x = -4\)
- **Range:** All real numbers except \(-7\)
- **Horizontal Asymptote (HA):** \(y = -7\)

9. \( f(x) = \frac{-1}{x-5} + 3 \)

- **Domain:** All real numbers except \(5\)
- **Vertical Asymptote (VA):** \(x = 5\)
- **Range:** All real numbers except \(-7\)
- **Horizontal Asymptote (HA):** \(y = 3\)