

Student: _____
Date: _____
Time: _____

Instructor: Fred Khoury
Course: Math 2312-1000 Precalculus (Fall - 2015)
Book: Lial: College Algebra and Trigonometry, 4e

Assignment: Quiz Sec 1.1

1. Find the domain of the expression.

$$\frac{7x - 8}{(3x - 2)(x + 8)}$$

- ☐ A. $\left\{x \mid x \neq \frac{2}{3}, -8\right\}$
☐ B. $\left\{x \mid x \neq \frac{3}{2}, -8\right\}$
☐ C. $\left\{x \mid x \neq -\frac{2}{3}, 8\right\}$
☐ D. all real numbers

2. Find the domain of the expression.

$$\frac{x^2 - 81}{x^2 + 11x + 18}$$

- ☐ A. $\{x \mid x \neq -9 \text{ and } x \neq 9\}$
☐ B. $\{x \mid x \neq 0\}$
☐ C. $\{x \mid x \neq 9 \text{ and } x \neq 2\}$
☐ D. $\{x \mid x \neq -9 \text{ and } x \neq -2\}$

3. Find the domain of the expression.

$$\frac{y}{y^2 - 16}$$

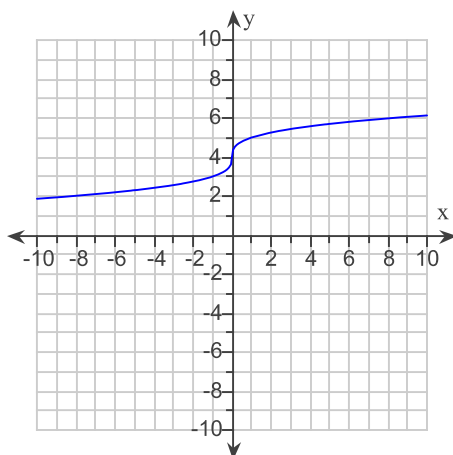
- ☐ A. $\{y \mid y \neq 4 \text{ and } y \neq -4\}$
☐ B. $\{y \mid y \neq 256 \text{ and } y \neq -256\}$
☐ C. $\{y \mid y \neq 16 \text{ and } y \neq -16\}$
☐ D. $\{y \mid y \neq 0\}$

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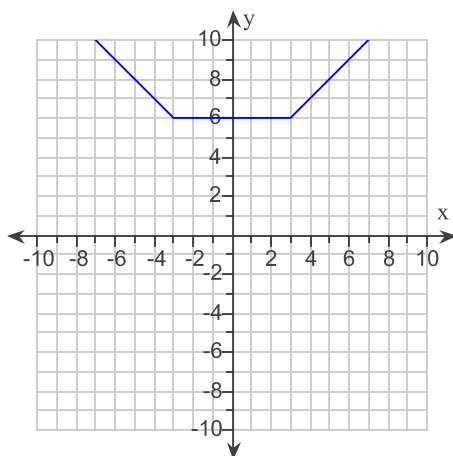
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4. Determine the intervals over which the function is decreasing, increasing, and constant.



- ☐ A. The function is increasing for all real numbers. It is never decreasing or constant.
- ☐ B. The function is decreasing for all real numbers. It is never increasing or constant.
- ☐ C. The function is decreasing on $(-\infty, 0]$ and increasing on $[0, \infty)$. It is never constant.
- ☐ D. The function is increasing on $(-\infty, 0]$ and decreasing on $[0, \infty)$. It is never constant.

5. Determine the intervals over which the function is decreasing, increasing, and constant.



- ☐ A. The function is increasing on $(-\infty, -3]$, constant on $[-3, 3]$, and decreasing on $[3, \infty)$.
- ☐ B. The function is decreasing on $(-\infty, -3]$, constant on $[-3, 3]$, and increasing on $[3, \infty)$.
- ☐ C. The function is increasing on $(-\infty, 3]$, constant on $[-3, 3]$, and decreasing on $[-3, \infty)$.
- ☐ D. The function is decreasing on $(-\infty, 3]$, constant on $[-3, 3]$, and increasing on $[-3, \infty)$.

6. Find the domain of $(fg)(x)$ when $f(x) = \sqrt{3x + 5}$ and $g(x) = \sqrt{9x - 6}$.

- ☐ A. $(-\infty, \infty)$
- ☐ B. $\left[\frac{2}{3}, \infty\right)$
- ☐ C. $\left[-\frac{2}{3}, \infty\right)$
- ☐ D. $[0, \infty)$

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7. Find the domain of $\left(\frac{f}{g}\right)(x)$ when $f(x) = \sqrt{2x - 3}$ and $g(x) = \frac{1}{x}$.

- ☐ A. $\left[\frac{3}{2}, \infty\right)$
☐ B. $(-\infty, 0) \cup (0, \infty)$
☐ C. $\left[-\frac{3}{2}, \infty\right)$
☐ D. $\left[-\frac{3}{2}, 0\right) \cup (0, \infty)$

8. Find the domain of $(f - g)(x)$ when $f(x) = \frac{5x}{x - 8}$ and $g(x) = \frac{6}{x + 5}$.

- ☐ A. $(-\infty, \infty)$
☐ B. $(-\infty, -5) \cup (-5, 8) \cup (8, \infty)$
☐ C. $(-\infty, -6) \cup (-6, -5) \cup (-5, \infty)$
☐ D. $(-\infty, -8) \cup (-8, 5) \cup (5, \infty)$

9. Compute and simplify the difference quotient $\frac{f(x+h) - f(x)}{h}$, $h \neq 0$, for $f(x) = 9x^2 + 9x$.

- ☐ A. $18x^2 + 9h + 9x$
☐ B. $18x + 9h + 9$
☐ C. $27x - 11h + 18$
☐ D. $18x + 9$

10. Find $(f \circ g)(-7)$ when $f(x) = 3x - 3$ and $g(x) = 2x^2 - 2x - 8$.

- ☐ A. 1,192
☐ B. -8
☐ C. 309
☐ D. -27

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11. For the given functions f and g , find $(f \circ g)(x)$.

$$f(x) = \frac{8}{x+7}, g(x) = \frac{1}{5x}$$

☐ A. $\frac{1x+7}{40x}$

☐ B. $\frac{40x}{1-35x}$

☐ C. $\frac{40x}{1+35x}$

☐ D. $\frac{8x}{1+35x}$

12. For the given functions f and g , find $(g \circ f)(x)$.

$$f(x) = \sqrt{x-8}, g(x) = -\frac{7}{x}$$

☐ A. $-\frac{7}{\sqrt{x-8}}$

☐ B. $\sqrt{-\frac{7}{x}-8}$

☐ C. $\frac{7}{\sqrt{-x-8}}$

☐ D. $-\frac{1}{\sqrt{7x-8}}$

13. For the given functions f and g , find $(f \circ g)(x)$.

$$f(x) = \sqrt{x+9}, g(x) = 8x-13$$

☐ A. $2\sqrt{2x-1}$

☐ B. $2\sqrt{2x+1}$

☐ C. $8\sqrt{x+9}-13$

☐ D. $8\sqrt{x-4}$

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14. Determine if the function is even, odd, or neither.

$$f(x) = x^4 - 5x^2 - 4$$

- ☐ Neither
☐ Odd
☐ Even

15. Determine if the function is even, odd, or neither.

$$f(x) = -5x^3 + 4x$$

- ☐ Even
☐ Neither
☐ Odd