Rationals

Name: _____ **Date:** _____

1. What is the domain of the function?

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

A. all real numbers

B. all real numbers less than or equal to 7

C. all real numbers except 2

D. all real numbers except 7

2. Simplify: $\frac{3}{x+2} - \frac{4}{x^2-4}$

A. $\frac{3x-2}{(x+2)(x-2)}$ B. $\frac{3x+10}{(x+2)(x-2)}$ C. $\frac{3x-10}{(x-2)^2}$ D. $\frac{3x-10}{(x+2)(x-2)}$

3. Solve: $\frac{3}{x+1} + \frac{4}{x+2} = 2$

A. $-2, \frac{3}{2}$ B. $-\frac{3}{2}, 2$ C. $-\frac{8}{7}$ D. $-3, 1$

4. State the range and domain of the function $y = \frac{1}{x} + 3$

5. Add: $\frac{5}{2x-8} + \frac{3x}{x^2-16}$

A. $\frac{11x}{2(x-4)^2}$ B. $\frac{11x+4}{2(x+4)(x-4)}$ C. $\frac{11x+20}{2(x+4)(x-4)}$ D. $11x+20$

6. Multiply: $\frac{a^2+7a+12}{a^2-9} \cdot \frac{a-3}{a+3}$

A. $\frac{a+4}{a-3}$ B. $\frac{a-4}{a+3}$ C. $\frac{a+4}{a+3}$ D. $\frac{a-4}{a-3}$

7. Multiply: $\frac{x^2+3x-10}{x^2-4} \cdot \frac{x+2}{x^2-9}$

A. $\frac{5}{x-9}$ B. $\frac{x+5}{x-9}$ C. $\frac{x+5}{x^2-9}$ D. $\frac{x-5}{x^2+9}$

8. Solve: $\dfrac{x^2-5}{x^2+3x-10}+\dfrac{x+1}{x+5}=\dfrac{x}{x-2}$

A. $\{-1,7\}$ B. $\{-1,-7\}$ C. $\{-1,2\}$ D. $\{1,-7\}$

9. The expression $\dfrac{2+\dfrac{1}{n}}{\dfrac{1}{n^2}}$ is equivalent to:

A. $\dfrac{2n+1}{n}$ B. $\dfrac{n}{2n+1}$ C. $2n+1$ D. $n(2n+1)$

10. Simplify: $\dfrac{a^2-b^2}{8a}\div\dfrac{(a+b)^2}{4a^3}$

A. $\dfrac{a^2(a+b)}{2(a+b)}$ B. $\dfrac{a^2(a-b)}{2(a+b)}$ C. $\dfrac{a^2(a+b)}{2(a-b)}$ D. $\dfrac{a^2(a-b)}{2(a-b)}$

11. Simplify: $\dfrac{x^2-x-2}{x^2+6x+5}\div\dfrac{2x^2-3x-2}{4x^2-1}$

A. $\dfrac{(x+1)(2x-1)}{(x+3)(x+2)}$ B. $\dfrac{2x-1}{x+5}$ C. $\dfrac{x+5}{2x-1}$ D. $\dfrac{1}{(x+2)(x+3)}$

12. Solve: $\dfrac{3}{x^2+x-6}=\dfrac{2}{x+3}-\dfrac{1}{x-2}$

A. -1 B. 0 C. 2 D. 4

13. Simplify: $\dfrac{4a-28}{6}\div\dfrac{a^2-49}{3a-21}$

A. $\dfrac{2(a-7)}{(a+7)}$ B. $\dfrac{2a-14}{7}$ C. $\dfrac{a^2+4a-77}{6(3a-21)}$ D. $\dfrac{a-8}{6(a-7)}$

14. Simplify: $\dfrac{5x}{x-1}-\dfrac{2x}{x-2}$

A. $\dfrac{3x^2-8x}{(x-1)(x-2)}$ B. $\dfrac{x^2-3x+2}{(x-1)(x-2)}$ C. $\dfrac{7x^2+12x}{(x-1)(x-2)}$ D. $\dfrac{3x^2+12x}{(x-1)(x-2)}$

15. Simplify: $\dfrac{x-3}{x-2}+\dfrac{5}{x+2}$

A. $\dfrac{x^2+4x-16}{x^2-4}$ B. $\dfrac{x-15}{2x}$ C. $\dfrac{5x-15}{x^2-4}$ D. $\dfrac{x+2}{x^2-4}$

16. Subtract and simplify: $\dfrac{x+4}{x^2+3x-10} - \dfrac{x-4}{x^2-6x+8}$

A. $-\dfrac{1}{x^2+3x-10}$ B. $-\dfrac{1}{x^2-3x-8}$ C. $-\dfrac{2x}{2x^2-3x-2}$ D. $-\dfrac{x^2-16}{x+5}x-2$

17. Find the domain of:

$$f(x) = \frac{3}{4-x^2}$$

18. Multiply: $\dfrac{x^2+6x+5}{x^2+2x-8} \cdot \dfrac{x^2-5x+6}{x^2+2x-15}$

A. $\dfrac{x+1}{x+4}$ B. $\dfrac{x-1}{x+4}$ C. $\dfrac{x+1}{x-4}$ D. $\dfrac{x-1}{x-4}$

19. Solve for x: $\dfrac{2}{x-2} + \dfrac{5}{x^2-4x+4} = 3$

A. $\left\{\frac{11}{3}, 1\right\}$ B. $\left\{\frac{3}{11}, -1\right\}$ C. $\left\{\frac{4}{3}, 1\right\}$ D. $\left\{\frac{8}{3}, 1\right\}$

20. Simplify: $\dfrac{3x^2-6x}{4-x^2} \cdot \dfrac{3x^2+5x-2}{27x^2-3}$

A. $\dfrac{-x}{3x+1}$ B. $\dfrac{-x(x-2)}{(3x-1)(x+2)}$ C. $\dfrac{x(x-2)}{(3x-1)(x+2)}$ D. $\dfrac{-x(x+2)}{(3x-1)(x+2)}$

21. Simplify: $\dfrac{3x-15}{4} \div \dfrac{x^2-25}{2x-10}$

A. $\dfrac{3(x-5)}{2(x+5)}$ B. $\dfrac{3x-5}{4}$ C. $\dfrac{3(x-5)}{(x+5)}$ D. $\dfrac{(x-5)}{2(x+5)}$

22. Solve: $\dfrac{5x-1}{4x-2} = \dfrac{5x+6}{4x+2}$

A. -2 B. $-\frac{7}{10}$ C. $\frac{6}{5}$ D. $\frac{5}{4}$

23. Simplify: $\dfrac{c^2-3c-10}{c^2-4} \div \dfrac{c^2-25}{c^2+2c-15}$

A. $\dfrac{c+2}{2(c-3)}$ B. $\dfrac{c-3}{c^2}$ C. $\dfrac{c-3}{c-2}$ D. $\dfrac{c^2(c-3)}{c-2}$

Rationals 10/19/2015

1.
Answer: C
Objective: F.IF.1

2.
Answer: D
Objective: A.APR.7

3.
Answer: B
Objective: A.REI.2

4.
Answer: $x \neq 0$ and $y \neq 3$
Objective: F.IF.1

5.
Answer: C
Objective: A.APR.7

6.
Answer: A
Objective: A.APR.7

7.
Answer: C
Objective: A.APR.7

8.
Answer: A
Objective: A.REI.2

9.
Answer: D
Objective: A.APR.7

10.
Answer: B
Objective: A.APR.7

11.
Answer: B
Objective: A.APR.7

12.
Answer: D
Objective: A.REI.2

13.
Answer: A
Objective: A.APR.7

14.
Answer: A
Objective: A.APR.7

15.
Answer: A
Objective: A.APR.7

16.
Answer: A
Objective: A.APR.7

17.
Answer: $x \neq 2, -2$
Objective: F.IF.1

18.
Answer: A
Objective: A.APR.7

19.
Answer: A
Objective: A.REI.2

20.
Answer: A
Objective: A.APR.7

21.
Answer: A
Objective: A.APR.7

22.
Answer: D
Objective: A.REI.2

23.
Answer: C
Objective: A.APR.7