Algebra II Practice A.APR.D.6: Rational Expressions 1

NAME:_____

Simplify:

1. $\dfrac{5x+20}{5x-20}$

   [A] -1 [B] none of these

   [C] $\dfrac{x+4}{x-4}$ [D] $\dfrac{x+20}{x-20}$

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

   [A] $\dfrac{x+5}{x-5}$ [B] none of these

   [C] -1 [D] $\dfrac{x+15}{x-15}$

3. $\dfrac{2x^2-2x-4}{6x^2-6}$

   [A] $\dfrac{x+2}{3(x+1)}$ [B] $\dfrac{x+1}{3(x-1)}$

   [C] $\dfrac{x-2}{3(x-1)}$ [D] $\dfrac{x-2}{3(x+1)}$

4. $\dfrac{3x^2-14x+8}{3x^2-48}$

   [A] $\dfrac{3x-4}{3(x+4)}$ [B] $\dfrac{3x-2}{3(x-4)}$

   [C] $\dfrac{3x-2}{3(x+4)}$ [D] $\dfrac{3x+2}{3(x-4)}$

5. $\dfrac{-x^2+x+42}{7-x}$

   [A] $-(x-6)$ [B] $(x+6)$

   [C] $(x-6)$ [D] $-(x+6)$

6. $\dfrac{x^2-x-12}{4-x}$

   [A] $-(x-3)$ [B] $(x+3)$

   [C] $-(x+3)$ [D] $(x-3)$

7. $\dfrac{x^2+2x-3}{1-x}$

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Simplify:

8. $\dfrac{x^2 - 2x - 8}{4 - x}$

9. $\dfrac{-7x}{x - x^2}$

10. $\dfrac{-9x}{x - x^2}$

11. Compare the quantity in Column A with the quantity in Column B.

Column A	Column B
$\dfrac{x^2 + 4x - 5}{x^2 - x - 30}$, if $x \neq -5$	$\dfrac{x-1}{x-6}$, if $x \neq 6$

[A] The quantity in Column A is greater.

[B] The quantity in Column B is greater.

[C] The two quantities are equal.

[D] The relationship cannot be determined on the basis of the information supplied.

12. Compare the quantities in Column A and Column B.

Column A	Column B
$\dfrac{4x + 8}{x}$	$\dfrac{3x^2 + 6x}{x}$

[A] The quantity in Column A is greater.

[B] The quantity in Column B is greater.

[C] The quantities are equal.

[D] The relationship cannot be determined from the information given.

13. True or False? The expression $\dfrac{x^2 - 3x - 10}{x - 5}$ is exactly the same as the expression $x + 2$. Justify your answer.

14. The design for a rectangular box has width x, length $2x$, and height 3 in. Compare the surface area of the box to its volume. Write your answer as a rational expression.

15. The sum of a set of data can be modeled by the expression $x^3 + x^2 - 2x$. Write an expression in simplest form for the mean of this data if the are $(x - 1)$ data items.

[1] C

[2] A

[3] C

[4] C

[5] B

[6] C

[7] $-(x+3)$

[8] $-(x+2)$

[9] $\dfrac{7}{x-1}$

[10] $\dfrac{9}{x-1}$

[11] C

[12] D

[13] False; the two expressions give the same result for any given value of x, but the first expression does not exist when $x = 5$.

[14] $\dfrac{2x+9}{3x}$

[15] $x(x+2)$