

NAME: _____

P.I. A.A.16: Simplify fractions with polynomials in the numerator and denominator by factoring both and renaming them to lowest terms

Simplify:

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

[A] -1

[B] none of these

[C] $\frac{x+4}{x-4}$

[D] $\frac{x+20}{x-20}$

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

[A] $\frac{x+5}{x-5}$

[B] none of these

[C] -1

[D] $\frac{x+15}{x-15}$

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

[A] $\frac{x+2}{3(x+1)}$

[B] $\frac{x+1}{3(x-1)}$

[C] $\frac{x-2}{3(x-1)}$

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

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

[A] $\frac{3x-4}{3(x+4)}$

[B] $\frac{3x-2}{3(x-4)}$

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

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

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

[A] $-(x-6)$

[B] $(x+6)$

[C] $(x-6)$

[D] $-(x+6)$

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

[A] $-(x-3)$

[B] $(x+3)$

[C] $-(x+3)$

[D] $(x-3)$

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

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Simplify:

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

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

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

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

<u>Column A</u>	<u>Column B</u>
$\frac{x^2 + 4x - 5}{x^2 - x - 30}, \text{ if } x \neq -5$	$\frac{x - 1}{x - 6}, \text{ if } x \neq 6$

- [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.

<u>Column A</u>	<u>Column B</u>
$\frac{4x + 8}{x}$	$\frac{3x^2 + 6x}{x}$

- [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 $\frac{x^2 - 3x - 10}{x - 5}$ 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.

[1] C

[2] A

[3] C

[4] C

[5] B

[6] C

[7] $-(x+3)$

[8] $-(x+2)$

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

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

[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] $\frac{2x+9}{3x}$