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College Algebra

Preliminary Assessment #4

Directions: Make sure to show your work.

1.

Simplify each rational expression.

(a) $\dfrac{3x^2y}{12xy^3}$

(b) $\dfrac{x^2-4y^2}{2x+4y}$

(c) $\dfrac{x^2+4x-5}{x^2+x-2}$

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2.

Simplify each rational expression.

(a) $\dfrac{18x^3y^2}{24xy^3}$

(b) $-\dfrac{28xz^2-7z}{7x^2z}$

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3.

Simplify each rational expression.

(a) $$\frac{x^2-4x-12}{x^2-x-30}$$

(b) $$\frac{2x^2+3x-5}{3x^2-5x+2}$$

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4.

Simplify each rational expression.

(a) $\dfrac{4x^2-16}{3x^2-3x-6}$

(b) $\dfrac{xy-5x+3y-15}{xy-5x+4y-20}$

5.

Find the following product.

$$\frac{x^2+2x-8}{x^2-1}\cdot\frac{x+1}{x+4}$$

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6.

Find the following quotient.

$$\frac{x+3}{x-5} \div \frac{x^2-9}{x^2-25}$$

7.

Perform the following operations. All results should be in simplified form.

(a) $(x+2)\cdot\dfrac{5}{3x+6}$

(b) $\dfrac{2x-10}{3x}\div(x-5)$

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8.

Perform the following operations. All results should be in simplified form.

(a) $\dfrac{x}{x^2-4}+\dfrac{2}{x^2-4}$

(b) $\dfrac{x}{x^2-4}-\dfrac{2}{x^2-4}$

9.

Simplify the following complex fraction.

$$\frac{\frac{2x}{3}+\frac{x}{6}}{\frac{x^2}{12}}$$

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10.

Solve and check: $\dfrac{x}{x+3}+\dfrac{1}{4}=\dfrac{x}{2x+6}$