A.APR.D.6: Rational Expressions 4

1 The expression $\frac{x^2+12}{x^2+3}$ can be rewritten as

1) $\frac{10}{x^2+3}$ 2) $1+\frac{9}{x^2+3}$ 3) $x+9$ 4) 4

2 The expression $\frac{x^2+6}{x^2+4}$ is equivalent to

1) $\frac{6}{4}$ 2) $1+\frac{10}{x^2+4}$ 3) $1-\frac{2}{x^2+4}$ 4) $1+\frac{2}{x^2+4}$

3 The expression $\frac{4x^2-5}{x^2-1}$ is equivalent to

1) $4-\frac{1}{x^2-1}$ 2) $4+\frac{1}{x^2-1}$ 3) $4-\frac{9}{x^2-1}$ 4) $4-\frac{4}{x^2-1}$

4 The expression $2-\frac{x-1}{x+2}$ is equivalent to

1) $1-\frac{3}{x+2}$ 2) $1+\frac{3}{x+2}$ 3) $1-\frac{1}{x+2}$ 4) $1+\frac{1}{x+2}$

5 Algebraically prove that $\frac{x^3+9}{x^3+8}=1+\frac{1}{x^3+8}$, where $x \neq -2$.

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Answer Section

1 ANS: 2

$$\frac{x^2+12}{x^2+3} = \frac{x^2+3}{x^2+3} + \frac{9}{x^2+3} = 1 + \frac{9}{x^2+3}$$

REF: 062218aii

2 ANS: 4

$$\frac{x^2+6}{x^2+4} = \frac{x^2+4}{x^2+4} + \frac{2}{x^2+4} = 1 + \frac{2}{x^2+4}$$

REF: 082321aii

3 ANS: 1

$$\frac{4x^2-5}{x^2-1} = \frac{4(x^2-1)}{x^2-1} - \frac{1}{x^2-1}$$

REF: 012510aii

4 ANS: 2

$$2 - \frac{x-1}{x+2} = 1 + \frac{x+2}{x+2} - \frac{x-1}{x+2} = 1 + \frac{x+2-(x-1)}{x+2} = 1 + \frac{3}{x+2}$$

REF: 081907aii

5 ANS:

$$\frac{x^3+9}{x^3+8} = \frac{x^3+8}{x^3+8} + \frac{1}{x^3+8}$$

$$\frac{x^3+9}{x^3+8} = \frac{x^3+9}{x^3+8}$$

REF: 061631aii