Regents Exam Questions   Name: _____
A.APR.D.7: Multiplication and Division of Rationals 2
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A.APR.D.7: Multiplication and Division of Rationals 2

1 Perform the indicated operation and express in *simplest form*: $\dfrac{x^2 - x}{3} \cdot \dfrac{6}{x^2 - 1}$

2 Perform the indicated operation and express in simplest form: $\dfrac{x^2 - 16}{x^2 - x - 20} \cdot \dfrac{x + 4}{x - 4}$

3 Express the product in simplest form:
$\left(\dfrac{a}{a^2 - 25}\right)\left(\dfrac{a^2 + 2a - 15}{a - 3}\right)$

4 Perform the indicated operations and express in simplest form: $\dfrac{a + 8}{7a^2} \cdot \dfrac{3a^2 - 24a}{a^2 - 64}$

5 Express the product in simplest form:
$\dfrac{a^2 - 9}{a^2 - 3a} \cdot \dfrac{a^2 + a}{a + 3}$

6 Express the product $(y + 1)\left(\dfrac{y}{1 - y^2}\right)$

7 Simplify: $\dfrac{a^4 - b^4}{a^2 - 2ab + b^2} \times \dfrac{a - b}{a^2 + ab}$

8 Express in simplest form: $\dfrac{y^4 - 1}{2y} \div \dfrac{y^3 + y}{y^2}$

9 Express in simplest form: $\dfrac{81 - x^2}{6x - 54} \div \dfrac{x^2 + 9x}{3x}$

10 Express in simplest form: $\dfrac{x^2 - 9}{2x - 8} \div \dfrac{3 - x}{x - 4}$

11 Perform the indicated operation and express in *simplest form*: $\dfrac{b^2 - 4}{2b - 6} \div \dfrac{2 - b}{b - 3}$

12 Express in simplest form: $\dfrac{1 - x^2}{6x + 6} \div \dfrac{x^4 - 1}{6x^2 + 6}$

13 Express in simplest form: $\dfrac{36 - x^2}{x^2 + 8x + 12} \div \dfrac{x^2 - 6x}{x - 2}$

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14 Perform the indicated operation and express in
    simplest form: $\dfrac{x^2 - 3x}{2x^2 + x - 6} \div \dfrac{x^2 - 5x + 6}{x^2 - 4}$

20 Express in simplest form:
    $\dfrac{x^2 + 2x}{x^2 + 2x - 15} \cdot \dfrac{2x - 6}{4} \div \dfrac{x^2 + x - 2}{x^2 + 4x - 5}$

15 Express in simplest form:
    $\dfrac{4x^2 - 100}{x^2 + x - 6} \div \dfrac{20 - 4x}{2x^2 - 9x + 10}$

21 Perform the indicated operations and simplify:
    $\dfrac{x^2 + 4xy + 3y^2}{x^2 - y^2} \cdot \dfrac{x^2 + xy}{x - y} \div \dfrac{x^2 + 3xy}{(x - y)^2}$

16 Express in simplest form:
    $\dfrac{2x - 8}{x^2 + x - 12} \div \dfrac{20 - 5x}{2x^2 - 5x - 3}$

22 Express in simplest form:
    $\dfrac{x^2 - 16}{2x^2 + 4x} \cdot \dfrac{x^2 + 9x + 14}{x^2 + 2x - 8} \div \dfrac{x^2 + 3x - 28}{16x - 8x^2}$

17 Express in simplest form:
    $\dfrac{64 - \cos^2 x}{\cos^2 x + 8\cos x} \div \dfrac{2\cos x - 16}{8\cos x}$

18 Express in simplest form:
    $\dfrac{x^2 - x - 56}{x^2 - 4} \cdot \dfrac{x^2 + x - 2}{8x - x^2} \div \dfrac{x^2 + 6x - 7}{x^2 + 2x - 8}$

19 Perform the indicated operations and express in
    lowest terms: $\dfrac{x^2 - 9}{2x + 4} \cdot \dfrac{x^2 + 7x + 10}{x^2 - 3x - 18} \div \dfrac{x^2 + 2x - 15}{2x^2 - 12x}$

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Answer Section

1 ANS:
$$\frac{2x}{x+1}$$

REF: 018607siii

2 ANS:
$$\frac{x+4}{x-5}$$

REF: 068806siii

3 ANS:
$$\frac{a}{a-5}$$

REF: 069006siii

4 ANS:
$$\frac{3}{7a}$$

REF: 089707siii

5 ANS:
$$a+1$$

REF: 089602siii

6 ANS:
$$\frac{y}{1-y}$$

REF: 088417siii

7 ANS:
$$\frac{a^2+b^2}{a}$$

REF: 019702al

8 ANS:
$$\frac{y^2-1}{2}$$

REF: 069440siii

9 ANS:
$$-\frac{1}{2}$$

REF: 060042siii

10 ANS:
$$\frac{-(x+3)}{2}$$

REF: 010141siii

11 ANS:
$$-\frac{b+2}{2}$$

REF: 018637siii

12 ANS:
$$-\frac{1}{x+1}$$

REF: 069540siii

13 ANS:
$$-\frac{(x-2)}{x(x+2)}$$

REF: 010339siii

14 ANS:
$$\frac{x}{2x-3}$$

REF: 018537siii

15 ANS:
$$-\frac{(2x-5)(x+5)}{x+3}$$

REF: 080238siii

16 ANS:
$$-\frac{2(2x+1)}{5(x+4)}$$

REF: 019938siii

17 ANS:
$$-4$$

REF: 080139siii

18 ANS:
$$\frac{-(x+4)}{x}$$

REF: 060237siii

19 ANS:
$$x$$

REF: 089939siii

20 ANS:
$\dfrac{x}{2}$

REF: 019636siii

21 ANS:
$x + y$

REF: 089037siii

22 ANS:
−4

REF: 010438siii