Math 20-1

KEY

L05 – FQ – 6.2 Multiplying and Dividing Rational Expressions

Use the following information to answer Q1-Q3:

Expression A	**Expression B**
$\frac{x^2-3x-18}{x^2+6x+8} * \frac{x^2-3x-10}{x^2+4x+3}$	$\frac{(x-5)(x+2)}{(x-3)(x+3)} \div \frac{(x-3)(x-5)}{(x+3)(x+2)}$

$x \neq 3$, $x \neq 5$; $x = 3$, $x \neq -3$; $x \neq -3$, $x \neq -2$

Q1: Using the expressions above, *Expression A* has 4 non-permissible values. *Expression B* has 4 non-permissible values.

$x \neq -4, -3, -2, -1$ $\qquad$ $x \neq -3, -2, 3, 5$

*(Record your **two-digit** answer in the Numerical Response boxes below)*

4	4		

There were 6 possible NPV's, but +3 and -3 were both repeated.

Q2: *Expression A* simplifies to $\frac{(x-a)(x-b)}{(x+c)(x+d)}$, where ***a, b, c,*** and ***d*** are ___, ___, ___, ___.

(Multiple correct answers exist)

*(Record your **four-digit** answer in the Numerical Response boxes below)*

Any of these are correct.

5	6	1	4

5	6	4	1

6	5	1	4

6	5	4	1

$x^2-3x-18 = (x+3)(x-6)$

$x^2+6x+8 = (x+2)(x+4)$

$x^2-3x-10 = (x+2)(x-5)$

$x^2+4x+3 = (x+1)(x+3)$

$\Rightarrow \frac{(x+3)(x-6)}{(x+2)(x+4)} \cdot \frac{(x+2)(x-5)}{(x+1)(x+3)}$

$x \neq -2$, $x \neq -4$, $x \neq -1$, $x \neq -3$

$= \frac{(x-5)(x-6)}{(x+1)(x+4)}$

Q3: *(Long Answer)* Simplify *Expression B*. State the Non-Permissible Values (NPV). *(3 marks)*

$\frac{(x-5)(x+2)}{(x-3)(x+3)} * \frac{(x+3)(x+2)}{(x-3)(x-5)} = \frac{(x+2)(x+2)}{(x-3)(x-3)}$ or $\frac{(x+2)^2}{(x-3)^2}$

where $x \neq -3, -2, 3, 5$

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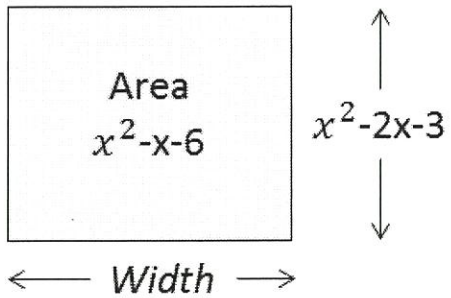
KEY

Use the following information to answer Q4:

The area of a rectangle is $x^2 - 2x - 3$. The height of the rectangle is $x^2 - 2x - 3$.



Q4: An expression for the width of the rectangle is $\frac{(x+a)}{(x+b)}$, where $x \neq c, -d$. The values of ***a, b, c,*** and ***d*** are ___, ___, ___, and ___.

*(Record your **four-digit** answer in the Numerical Response boxes below)*

2	1	3	1

$\text{Width} = \frac{\text{Area}}{\text{Length}} = \frac{(x^2-x-6)}{(x^2-2x-3)} = \frac{(x-3)(x+2)}{(x-3)(x+1)} = \frac{(x+2)}{(x+1)}$ where $x \neq -1, 3$

$x \neq 3$ $\quad x \neq -1$

$a = 2$
$b = 1$
$c = 3$
$d = 1$

MARKING:

Beginning	0.0 – 2.5
Progressing	3.0 – 4.0
Competent	4.5 – 5.5
Exemplary	6.0