XT - MATHS Grade 10

Name: _____   **Class:** _____

Subject: Algebra 3: Algebraic Fractions   **Date:** _____

Total Marks: 38

Question 1: True/False [3]

$\dfrac{20d^2 - 50d^3 + 10d}{-10d} = -2d + 5d^2 - 1$, if d is not equal to 0.

| TRUE | FALSE |

Question 2: True/False [2]

$\dfrac{3b^3}{8a} \div \dfrac{15}{4}$ simplified will equal $\dfrac{ab^3}{10}$

| TRUE | FALSE |

Question 3: True/False [2]

$\dfrac{x}{y} \div \left(\dfrac{a}{b} \times \dfrac{c}{d} \right)$ simplified will equal $\dfrac{bdx}{acy}$.

| TRUE | FALSE |

Question 4: True/False [2]

$\dfrac{3}{x} + \dfrac{2}{y}$ simplified will equal $\dfrac{3x + 2y}{xy}$.

| TRUE | FALSE |

Question 5: True/False [2]

Given the expression $\dfrac{3}{x^2} + \dfrac{2}{y^2}$

Simplifying is as follows: $\dfrac{3}{x^2} + \dfrac{2}{y^2}$

$$= \dfrac{5x^2y^2}{x^2y^2}$$

$$= 5$$

When these fractions are added, it will be done as follows:

| TRUE | FALSE |

Question 6: True/False [3]

$\dfrac{\frac{1}{a} + \frac{1}{b}}{\frac{1}{a+b}}$ simplified will equal $(a+b)(a+b)$.

TRUE		FALSE

Question 7: True/False [2]

Consider the two fractions, where **x** is a natural number:

$R = \dfrac{5}{x}$ and $S = \dfrac{5}{3x}$

For all natural values of **x**: **R < S**

TRUE		FALSE

Question 8: Multiple Choice [2]

Simplify the expression: $\dfrac{60x^6y^3 - 15x^4y^4}{-5x^3y^2} = \ldots$

A	$-12x^3y + 15x^4y^4$

B	$-\dfrac{9}{xy}$

C	$-12x^3y + 3xy^2$

D	$55x^3y - 20xy^2$

Question 9: Multiple Choice [2]

Simplify the expression: $\dfrac{x^2 + y^2}{(x+y)^2} = \ldots$

A	1

B	$\dfrac{1}{2xy}$

C	$\dfrac{x^2}{x+y}$

D	$\dfrac{y^2}{x+y}$

E	$\dfrac{x^2 + y^2}{(x + y)^2}$

Question 10: Multiple Choice [4]

Simplify the expression: $\dfrac{\dfrac{1}{x} + \dfrac{2}{x^2} + \dfrac{1}{x^3}}{(x + 1)^2} = ...$

A	$\dfrac{1}{x^3}$

B	$\dfrac{x + 2x^2 + x^3}{(x + 1)^2}$

C	1

D	x

E	x^3

Question 11: Multiple Choice [3]

Simplify the expression: $\dfrac{3}{2} - \dfrac{4 - p}{8p} + \dfrac{3}{4p} = ...$

A	$\dfrac{13p + 2}{8p}$

B	$\dfrac{11p + 2}{8p}$

C	$13p + 2$

D	$11p + 2$

Simplify the expression: $\dfrac{3-x}{3x} + \dfrac{3-x}{3} - \dfrac{3-x}{3x^2} = ...$

A $\dfrac{-x^3 + 2x^2 + 4x - 3}{3x^2}$

B $\dfrac{-x^3 + 2x^2 + 2x - 3}{3x^2}$

C $-x^3 + 2x^2 + 4x - 3$

D $-x^3 + 2x^2 + 2x - 3$

E $\dfrac{3-x}{-3x^2 + 3x + 3}$

Simplify the expression: $\dfrac{4t^2}{3k^3} \times \dfrac{k^4 - k^3}{2t} \div \dfrac{2t}{3} = ...$

A $k - 1$

B $\dfrac{1}{(k-1)}$

C $\dfrac{\left[4t^2(k-1)\right]}{9}$

D $\dfrac{t^2}{k^2}$

Study the following attempt at simplification, and then choose the best option given:

$$\frac{3x^2 - 8x}{3x^2} = \frac{\cancel{3}\,x^{\cancel{2}} - 8x}{\cancel{3}\,x^{\cancel{2}}} = -8x$$

A	No errors were made; the simplification is correct

B	An error was made with cancelling and then simplifying; the answer should be *1 - 8x*

C	An error was made with cancelling terms; the answer should be $\dfrac{3x-8}{3x}$

Question 15: Socrates [2]   Mathematics - LO 2 : AS 4

Simplify the expression: $\dfrac{3}{2p} + \dfrac{7}{5p} = \dfrac{...}{10p}$

Type the number only.

<div style="text-align:right">15 Questions, 5 Pages</div>