Grade 8 Bilingual Math worksheet: Fraction

Name:_____   Score:_____

Show all work clearly and in order, and circle your final answers. Justify your answers algebraically whenever possible; when you do use your calculator, sketch all relevant graphs and write down all relevant mathematics. **Due: 26 Aug.**

1. Which ones in the following are fractions, take circles on them.

$$\frac{2a^2b}{3}, \ xy^2 + 4x^2y, \ \frac{x-3}{\pi}, \ \frac{2}{x+3}, \ \frac{x}{x^2+2}$$

2. Write down the conditions for x such that the following fractions has meaning

$$\frac{1}{x}, \ \frac{2x}{x+2}, \ \frac{m-1}{2m-5}, \ \frac{3x}{x^2+1}$$

3. Simplify the following fractions

(1) $\dfrac{x-\frac{1}{2}y}{\frac{1}{2}x+y}$

(2) $\dfrac{a^2bc}{ab}$

(3) $\dfrac{(a+b)^2}{a^2-b^2}$

(4) $\dfrac{x^3-xy^2}{x^3+2x^2y+xy^2}$

4. Calculate and simplify your results for each of the following.

(1) $\left(-\frac{n}{m^2}\right) \div \left(-\frac{n}{m}\right)^2 =$

(2) $\frac{b}{12a} \div \frac{3c}{2a} =$

(3) $\frac{xy}{3ab} \div \frac{ab}{x} \times \frac{9ab^2}{2x^2y^2} =$

(4) $\frac{x^2-4y^2}{3xy^2} \times \frac{xy}{x-2y} =$

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

(6) $\frac{m+2n}{n-m} + \frac{n}{m-n} - \frac{2m}{n-m} =$

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

(8) $\frac{2}{3x^2} + \frac{3}{4y} - \frac{5}{6xy} =$

5. Solve the following equations.

(1) $\frac{3}{x+4} - \frac{8}{x-1}$

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

(3) $\frac{x-4}{x-5} - 3 = \frac{1}{x-5}$

(4) $\frac{x-2}{x+2} - \frac{16}{x^2-4} = \frac{x+2}{x-2}$

6. Find the value of x when $\frac{1}{1-x^2} - \frac{3}{1-x}$ and $\frac{5}{1+x}$ are opposite numbers.

7. Given that $\frac{1}{a} + \frac{1}{b} = 4$, find the value of $\frac{a-3ab+b}{2a+2b-7ab}$.

8. Given that $\frac{x}{a-b} = \frac{y}{b-c} = \frac{z}{c-a}$ (a,b,c are not equal to each other), find the value for $x + y + z$.