

Grade 8 Bilingual Math worksheet: Fraction 2

Name: _____

Score: _____ (Due: 3 Sep.)

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

$$\frac{1}{x}, \frac{2x}{3}, \frac{4x}{\pi}, \frac{xy}{a}, x^2y + \frac{2}{xy}, \frac{2}{4-x}, \frac{2}{3}$$

2. Fill in the blanks

(1) when x _____, the fraction $\frac{x-5}{x+8}$ has meaning

(2) if $\frac{x^2-1}{x+1} = 0$, then $x =$ _____

(3) if $\frac{x}{y} = 3$, then $\frac{x^2+xy}{y^2} =$ _____

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

3. Simplify the fractions

(1) $\frac{x-y}{(x-y)^3} =$

(2) $\frac{-2ac^2}{14a^2bc} =$

(3) $\frac{mn}{m^2+mn} =$

(4) $\frac{4-a^2}{a^2-2a} =$

(5) $\frac{a^2-ab}{b^2-ab} =$

(6) $\frac{5+x}{-x^2+25} =$

(7) $\frac{ab^2(a-b)}{a^2b-ab^2} =$

4. Calculate and simplify your results.

- (1) $-\frac{5}{x} + \frac{4}{x}$
- (2) $\frac{a-2b}{5b^2} - \frac{a+3b}{5b^2}$
- (3) $\frac{x-3}{1-x} - \frac{1+x}{x-1}$
- (4) $\frac{a}{(a-b)^2} - \frac{b}{(b-a)^2}$
- (5) $\frac{c}{a} + \frac{1}{b}$
- (6) $\frac{3}{a} + \frac{a-15}{5a}$
- (7) $\frac{bc}{a^2} \times \frac{2a}{b^2c}$
- (8) $\left(\frac{m}{n}\right)^2 \times \frac{2n^2}{3m}$
- (9) $\left(\frac{b}{a}\right)^2 \div (-b^2)$
- (10) $\frac{b^2c}{a} \times \frac{ac}{b} \div \left(\frac{c}{a}\right)^2$

5. Solve the fraction equations.

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

6. For a fraction, its numerator is smaller than its denominator by 1. If the numerator plus 1 and the denominator minus 1, then we will get $\frac{8}{9}$. Find the original fraction.

7. If we define a new operator \star : $a \star b = a^2 \cdot b$. For example, $2 \star 3 = 2^2 \cdot 3 = 12$. Find $\frac{b}{a} \star \frac{a}{b}$.