

## DOUBLE TUTORIAL 2

## First Hour

**Question 1.** Use the distributive law to calculate the following expressions.

(a)

$$(99 + 999) \div 9,$$

(b)

$$(88 + 77) \div 11,$$

(c)

$$\frac{333 - 63}{3},$$

(d)

$$1001 \times 37,$$

(e)

$$999 \times 37.$$

**Question 2.**

For each fraction from the list below decide if it is a proper, an improper or a mixed fraction.

(a)  $\frac{1}{4},$

(b)  $-2\frac{3}{5},$

(c)  $\frac{7}{4},$

(d)  $\frac{14}{14}.$

**Question 3.** Convert these improper fractions to mixed fractions.

(a)  $\frac{89}{4},$

(b)  $\frac{8}{4},$

(c)  $-\frac{78}{11}.$

**Question 4.** Convert these mixed fractions to improper fractions.

(a)  $4\frac{6}{7}$ ,

(b)  $-1\frac{1}{9}$ ,

(c)  $-101\frac{10}{11}$ .

**Question 5.** Simplify the fractions by cancelling.

(a)  $\frac{6}{3}$ ,

(b)  $-\frac{3}{9}$ ,

(c)  $-\frac{125}{25}$ .

**Question 6.** Evaluate and simplify if necessarily

(a)  $\frac{1}{3} + \frac{2}{9}$ ,

(b)  $\left(\frac{3}{8} - \frac{9}{4}\right) \times 8$ ,

(c)  $\left(\frac{12}{25} - \frac{1}{5}\right) \div \frac{7}{5}$ .

**Question 7.** Compare two fractions

(a)  $\frac{1}{3}$  and  $\frac{2}{9}$ ,

(b)  $-\frac{89}{90}$  and  $-\frac{90}{89}$ ,

(c)  $2\frac{23}{25}$  and  $2\frac{25}{26}$

**Question 8.** Find the average of two numbers

(a)  $\frac{1}{2}$  and  $\frac{1}{3}$

(b)  $\frac{1}{3}$  and 3,

(c)  $\frac{1}{3}$  and  $-3$ ,

(d)  $\frac{23}{25}$  and  $\frac{25}{26}$ ,

(e)  $\frac{11}{12}$  and  $\frac{11}{12}$ .

**Question 9.** Is it true or false that

(a)  $\frac{0}{0} = 1$ ?

(b)  $\frac{0}{1} = 0$ ?

(c)  $1 \div \frac{1}{4} = \frac{1}{4}$ ?

(d)  $1 \div \frac{1}{4} = 4$ ?

(e)  $\frac{3+2}{2} = \frac{3+\cancel{2}}{\cancel{2}} = 3$ ?

(e)  $\frac{2(3+5)}{2} = \frac{\cancel{2}(3+5)}{\cancel{2}} = 8$ ?

## Second Hour

**Question 1.** Use a calculator to find the values of the following numbers. Round these numbers off to two decimal places. Mark these numbers on a number line.

(a)  $\sqrt{2}$ ,

(b)  $-\sqrt{13}$ ,

(c)  $2\pi$ ,

(d)  $\frac{\pi - \sqrt{3}}{2}$ .

**Question 2.**

- (a) Two sides of a right triangle are  $5\text{ cm}$  and  $3\text{ cm}$ . Find the length of the hypotenuse.

- (b) The hypotenuse of a right triangle is  $5\text{ m}$  long, one side is  $2\text{ m}$  long. Calculate the length of the second side of this triangle. Approximate the length to two decimal places. Write the answer in the mixed form of metres and centimetres.
- (c) Two sides of a right triangle have the same length and the hypotenuse is  $18\text{ cm}$ . Find the lengths of the sides.

**Question 3.** A flower bed in the middle of the new park is planned in the circular form with the radius of the circle  $3.50\text{ m}$ .

- (a) An art fence around the flower bed is ordered to be made by a smith. What is the length of the fence needed? What is a reasonable approximation of the fence length in this case?
- (b) What is the area of the flower bed?
- (c) Nine flowers will fit in one square meter. How many flowers will fit in this flower bed?

**Question 4.** Convert the following fractions to decimals:

$$\frac{1}{4}, \frac{7}{8}, -\frac{3}{15}, \frac{5}{6}, \frac{1001}{1000}, -\frac{57}{7}.$$

**Question 5.** Convert the following decimals to proper or improper fractions:

$$0.4, -0.345, 9.66.$$

**Question 6.**

- (a)  $A$  is the set of all real numbers  $x$  with  $-1 < x < 2$ . Mark this interval on the number line. Is it an open, closed, or semi-open interval?
- (b)  $B$  is the ray  $[1, \infty)$ . Mark the ray on the same number line. Use another colour or different shading as in the part (a).
- (c) Find  $A \cup B$  and  $A \cap B$ .
- (d) Does the point  $2.01$  belong to the set  $A$ ?  $B$ ?  $A \cup B$ ?  $A \cap B$ ?

**Question 7.** Describe in words (open/closed/semi-open interval or a ray), in the form of an inequality, and in the form  $[a, b]$ , the sets on the number line given by the pictures below.

