

**Assignment 2**

**Question 1.** [1 mark] Compute the following expression. Show your working.

$$(15 \div (105 - 102) + 3) \times 20.$$

**Question 2.** [1 mark]

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

(a)  $\frac{8}{7}$ ; (b)  $-5\frac{3}{4}$ ; (c)  $\frac{1}{9}$ ; (d)  $\frac{21}{21}$ .

**Question 3.** [1 mark] Convert the improper fractions below to mixed fractions. Show your working.

(a)  $\frac{70}{9}$ ; (b)  $-\frac{315}{31}$ .

**Question 4.** [1 mark] Convert the mixed fractions below to improper fractions. Show your working.

(a)  $7\frac{1}{3}$ ; (b)  $-5\frac{7}{12}$ .

**Question 5.** [1 mark] Simplify the fractions below by cancelling.

(a)  $\frac{70}{49}$ ; (b)  $-\frac{75}{15}$ .

**Question 6.** [3 marks] Evaluate and simplify if possible. Show your working.

(a)  $\frac{5}{7} - \frac{5}{14}$ ,

(b)  $\left(\frac{3}{40} + \frac{1}{30}\right) \times 110$ ,

(c)  $\frac{14}{84} - \frac{3}{8} \div \frac{9}{4}$ .

**Question 7.** [2 marks] Compare the two fractions in each part. Show your working.

(a)  $-\frac{2}{5}$  and  $-\frac{1}{2}$ ,

(b)  $\frac{5}{6}$  and  $\frac{7}{8}$

**Question 8.** [2 marks] Evaluate the average of two numbers,  $-\frac{2}{3}$  and  $\frac{3}{2}$ . Show your working. Mark the two numbers and their average on the number line.

**Question 9.** [2 marks] Use a calculator to find the approximate values of the following numbers. Round these numbers off to one decimal place. Mark these numbers on the number line.

(a)  $-\sqrt{7}$ ; (b)  $2\pi$ .

**Question 10.** [1 mark] Consider a right triangle with perpendicular legs of length 6 *cm* and 5 *cm*. Find the length of the hypotenuse. Approximate the answer to three decimal places.

**Question 11.** [1 mark] Find the area and the circumference of a circle with radius  $r = 4.12$  *m*. Approximate the answers to two decimal places.

**Question 12.** [1 mark] Convert the following fractions to decimals. Show your working (long division).

(a)  $\frac{7}{8}$ , (b)  $\frac{16}{7}$ .

**Question 13.** [1 mark] Convert the following decimals to proper or improper fractions. Show your working.

(a) 0.72; (b)  $-0.999$ ; (c) 9.31.

**Question 14.** [2 marks]

- (a) Let  $A$  be the set of all real numbers  $x$  with  $-\sqrt{2} < x \leq \frac{2}{3}$ . Mark this interval on the number line. Is it an open, closed, or semi-open interval?
- (b) Let  $B$  be the closed interval  $[\frac{1}{3}, 2]$ . Mark the interval on the same number line. Use different shading as in the part (a).
- (c) Show on the number line the intersection and the union of these two intervals,  $A \cup B$  and  $A \cap B$ . Write down the answer using the notation for intervals.
- (d) Does the point 0.67 belong to the set  $A$ ?  $B$ ?  $A \cup B$ ?  $A \cap B$ ?  $B \setminus A$ ?