

## Edufest Junior, Pune 7709585248

### Chapter 1: Rational Numbers

**Instructions:** Read each question carefully. Show all working where required. Use ruler and compass for constructions.

#### SECTION A: Multiple Choice Questions (1 mark each) [5 marks]

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**Q1.** Which of the following is a rational number? [1 mark]

- (a)  $\sqrt{5}$  (b)  $\sqrt{4}$  (c)  $\pi$  (d)  $\sqrt{3}$

**Q2.** The additive inverse of  $-3/7$  is: [1 mark]

- (a)  $3/7$  (b)  $-3/7$  (c)  $7/3$  (d)  $-7/3$

**Q3.** Which property states that  $a + b = b + a$  for rational numbers? [1 mark]

- (a) Associative (c) Commutative  
(b) Distributive (d) Closure

**Q4.** The rational number 0 is: [1 mark]

- (a) Positive (c) Neither positive nor negative  
(b) Negative (d) Not defined

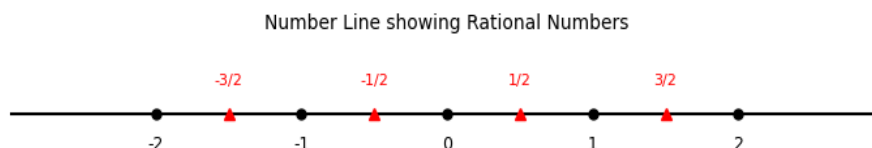
**Q5.** How many rational numbers lie between  $1/3$  and  $1/2$ ? [1 mark]

- (a) 0 (c) 3  
(b) 1 (d) Infinitely many

#### SECTION B: Short Answer Questions (2 marks each) [6 marks]

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**Q6.** Represent  $-3/5$  and  $7/10$  on a number line. Which is greater? [2 marks]



**Q7.** Find the product of  $-4/9 \times 3/8$ . Also write the reciprocal of the result. [2 marks]

**Q8.** Verify that  $-(-5/11) = 5/11$  using the definition of additive inverse. [2 marks]

#### SECTION C: Long Answer Questions (3 marks each) [6 marks]

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**Q9.** Simplify:  $(3/4 \times -8/9) + (1/3 \div 2/9) - (5/6 \times 3/10)$ . Show all steps. [3 marks]

**Q10.** Verify the distributive property of multiplication over addition for the rational numbers:  $a = 1/2$ ,  $b = -3/4$ ,  $c = 5/6$ . Show all steps. [3 marks]

#### SECTION D: Case Study (3 marks)

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##### Case Study: The Farmer's Land

A farmer owned  $3/4$  of a hectare of land. He sold  $1/3$  of his land to his neighbour and gifted  $1/6$  of the original land to his son. The remaining land he divided equally between 2 grandsons.

**Qi.** What fraction of land did the farmer sell and gift together? [1 mark]

**Qii.** What fraction of the original land remained after selling and gifting? [1 mark]

**Qiii.** What fraction of the original land did each grandson receive? [1 mark]