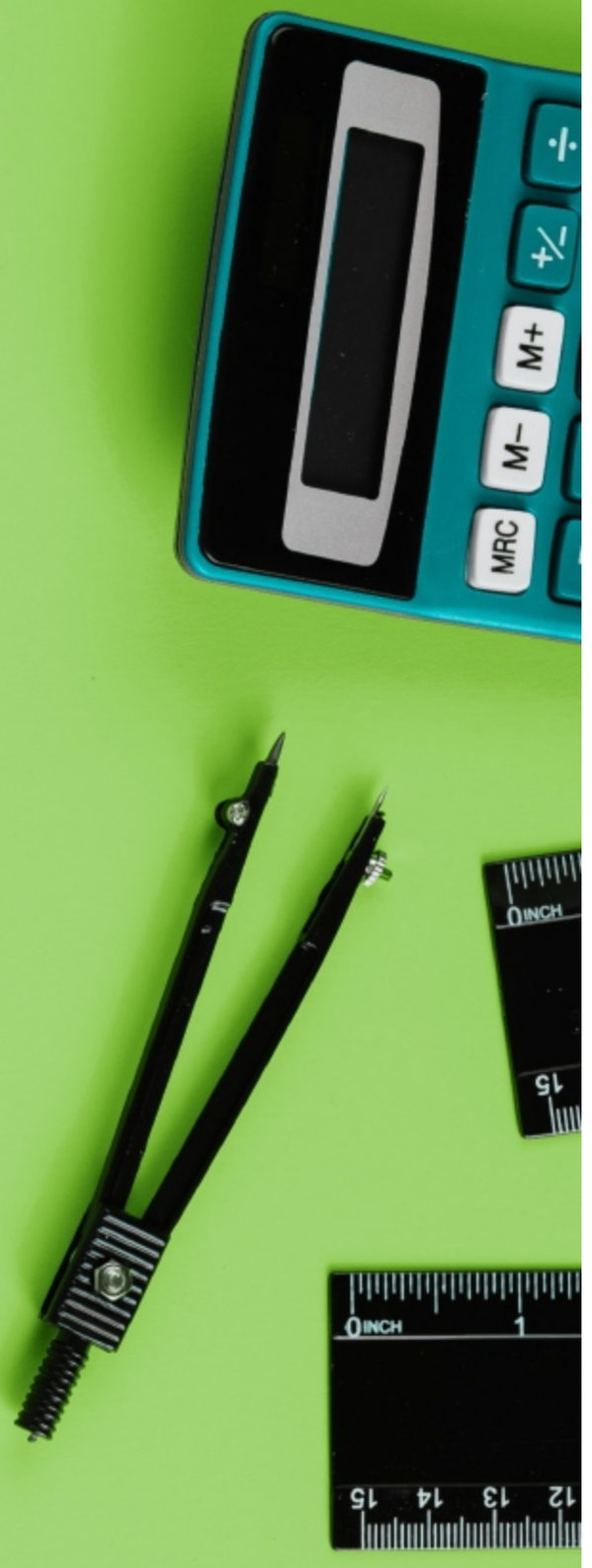
RD Sharma Solutions

Class 7

aglasem.com



Exercise 4.2

Q.1 Express each of the following as a rational number with positive denominator:

(i) $\frac{-15}{-28}$ (ii) $\frac{6}{-9}$ (iii) $\frac{-28}{-11}$ (iv) $\frac{19}{-7}$

Solution: (i) $\frac{-15}{-28} \times \frac{-1}{-1} = \frac{15}{28}$

(ii) $\frac{6}{-9} \times \frac{-1}{-1} = \frac{-6}{9}$

(iii) $\frac{-28}{-11} \times \frac{-1}{-1} = \frac{28}{11}$

(iv) $\frac{19}{-7} \times \frac{-1}{-1} = \frac{-19}{7}$

Q.2 Express $\frac{3}{5}$ as a rational number with numerator:

(i) 6 (ii) -15 (iii) 21 (iv) -27

Solution: (i) $\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10}$

(ii) $\frac{3}{5} = \frac{3 \times -5}{5 \times -5} = \frac{-15}{-25}$

(iii) $\frac{3}{5} = \frac{3 \times 7}{5 \times 7} = \frac{21}{35}$

(iv) $\frac{3}{5} \times \frac{-9}{-9} = \frac{-27}{-45}$

docs.aglasem.com

aglasem.com

Q.3 Express $\frac{5}{7}$ as a rational number with denominator

(i) -14 (ii) 70 (iii) -28 (iv) -84

Solution: (i) $\frac{5}{7} = \frac{5\times -2}{7\times -2}$ $\{\because -14 \div 7 = -2\}$

$= \frac{-10}{-14}$

(ii) $\frac{5}{7} = \frac{5\times 10}{7\times 10} = \frac{50}{70}$ $(\because \frac{70}{7} = 10)$

(iii) $\frac{5}{7} = \frac{5\times -4}{7\times -4} = \frac{-20}{-28}$ $(\because -28 \div 7 = -4)$

(iv) $\frac{5}{7} \times \frac{-12}{-12} = \frac{-60}{-84}$ $(\because -84 \div 7 = -12)$

Q.4 Express $\frac{3}{4}$ as a rational number with denominator

(i) 20 (ii) 36 (iii) 44 (iv) -80

Solution: (i) $\frac{3}{4} \times \frac{5}{5} = \frac{15}{20}$ $(\because \frac{20}{4} = 5)$

(ii) $\frac{3}{4} \times \frac{9}{9} = \frac{27}{36}$ $(\because \frac{36}{4} = 9)$

(iii) $\frac{3}{4} \times \frac{11}{11} = \frac{33}{44}$ $(\because \frac{44}{4} = 11)$

(iv) $\frac{3}{4} \times \frac{-20}{-20} = \frac{-60}{-80}$ $(\because \frac{-80}{4} = -20)$

docs.aglasem.com

aglasem.com

Q.5 Express $\frac{2}{5}$ as a rational number with numerator

(i) -56 (ii) 154 (iii) -750 (iv) 500

Solution (i) given rational number $= \frac{2}{5}$

To make numerator -56, we multiply by $-56 \div 2 = -28$

so $\frac{2}{5} \times \frac{-28}{-28} = \frac{-56}{-140}$

(ii) To make numerator 154, we multiply by $\frac{154}{2} = 77$

so $\frac{2}{5} \times \frac{77}{77} = \frac{154}{385}$

(iii) To make numerator -750, we multiply by $\frac{-750}{2} = -375$

$\therefore \frac{2}{5} \times \frac{-375}{-375} = \frac{-750}{-1875}$

(iv) To make numerator 500, we multiply numerator and denominator by $500 \div 2 = 250$, so,

$\frac{2}{5} \times \frac{250}{250} = \frac{500}{1250}$

Q.6 Express $\frac{-192}{108}$ as a rational number with numerator:

docs.aglasem.com

aglasem.com

(i) 64 (ii) −16 (iii) 32 (iv) −48

Solution: given rational number $= \frac{-192}{108}$

(i) To make numerator 64, we divide numerator and denominator by $-192 \div 64 = -3$, so

$$\frac{-192 \div -3}{108 \div -3} = \frac{64}{-36}$$

(ii) To make numerator −16, we divide numerator and denominator by $-192 \div -16 = 12$, so, we have

$$\frac{-192 \div 12}{108 \div 12} = \frac{-16}{9}$$

(iii) To make numerator 32, we divide numerator and denominator by $-192 \div 32 = -6$, so.

$$\frac{-192 \div -6}{108 \div 6} = \frac{32}{18}$$

(iv) To make numerator −48, we divide numerator and denominator by $-192 \div -48 = 4$, we get

$$\frac{-192 \div 4}{108 \div 4} = \frac{-48}{27}$$

aglasem.com

docs.aglasem.com

Q.7 Express $\frac{168}{-294}$ as a rational number with denominator:

(i) 14 (ii) −7 (iii) −49 (iv) 1470

Solution: given rational number $= \frac{168}{-294}$

(i) To convert denominator 14, we divide numerator and denominator by $-294 \div 14 = -21$

$$\therefore \frac{168 \div -21}{-294 \div -21} = \frac{-8}{14}$$

(ii) To convert denominator 7, we divide numerator and denominator by $-294 \div -7 = +42$, we get

$$\frac{168 \div +42}{-294 \div +42} = \frac{4}{-7}$$

(iii) To convert denominator −49, we divide numerator and denominator by $-294 \div -49 = 6$, so,

$$\frac{168 \div 6}{-294 \div 6} = \frac{28}{-49}$$

(iv) To convert denominator 1470, we multiply numerator and denominator by $1470 \div -294 = -5$, so

$$\frac{168 \times -5}{-294 \times -5} = \frac{-840}{1470}$$

docs.aglasem.com

aglasem.com

Q.8 Write $\frac{-14}{42}$ in a form so that the numerator is equal to :

(i) -2 (ii) 7 (iii) 42 (iv) -70

Solution : given rational number $= \frac{-14}{42}$

(i) To convert numerator -2, we divide numerator and denominator by $-14 \div -2 = 7$, we get

$$\frac{-14 \div 7}{42 \div 7} = \frac{-2}{6}$$

(ii) To convert numerator 7, we divide numerator and denominator by, $-14 \div 7 = -2$, we get

$$\frac{-14 \div -2}{42 \div -2} = \frac{7}{-21}$$

(iii) To convert numerator 42, we multiply numerator and denominator by $42 \div -14 = -3$, we get

$$\frac{-14}{42} \times \frac{-3}{-3} = \frac{42}{-126}.$$

(iv) To convert numerator -70, we multiply numerator and denominator by $-70 \div -14 = 5$, we get

$$\frac{-14 \times 5}{42 \times 5} = \frac{-70}{120}$$

docs.aglasem.com

aglasem.com

Q.9 Select those rational numbers which can be written as a rational number with numerator 6.

$$\frac{1}{22}, \frac{2}{3}, \frac{3}{4}, \frac{4}{-5}, \frac{5}{6}, \frac{-6}{7}, \frac{-7}{8}$$

Solution: Only those rational number can be written with numerator 6, if 6 is multiple of their numerator or factor of the numerator.

So, required fractions are

$$\frac{1}{22}, \frac{2}{3}, \frac{3}{4}, \frac{-6}{7}$$

Q.10 Select those rational numbers which can be written as a rational number with denominator 4.

$$\frac{7}{8}, \frac{64}{16}, \frac{36}{-12}, \frac{-16}{17}, \frac{5}{-4}, \frac{140}{28}$$

Solution: $\because$ 8, 16, −12, −4, 28 are multiple of 4.

$\therefore$ $\frac{7}{8}, \frac{64}{16}, \frac{36}{-12}, \frac{5}{-4}, \frac{140}{28}$ can be written as denominator 4.

docs.aglasem.com

aglasem.com

Q11 In each of the following, find an equivalent form of the rational number having a common denominator:

(i) $\frac{3}{4}$ and $\frac{5}{12}$ (ii) $\frac{2}{3}, \frac{7}{6}$ and $\frac{11}{12}$

(iii) $\frac{5}{7}, \frac{3}{8}, \frac{9}{14}$ and $\frac{20}{21}$

Solution: (i) In $\frac{3}{4}$ and $\frac{5}{12}$

$$LCM\ (4, 12) = 12$$

$$\therefore \frac{3}{4} \times \frac{3}{3} = \frac{9}{12} \ ; \ \frac{5 \times 1}{12 \times 1} = \frac{5}{12}$$

hence $\frac{9}{12}, \frac{5}{12}$

(ii) $\frac{2}{3}, \frac{7}{6}, \frac{11}{12}$ $\quad \because LCM\ (3, 6, 12) = 12$

$$\therefore \frac{2}{3} \times \frac{4}{4} = \frac{8}{12} \ ; \ \frac{7}{6} \times \frac{2}{2} = \frac{14}{12} \ ; \ \frac{11}{12} \times \frac{1}{1} = \frac{11}{12}$$

hence $\frac{8}{12}, \frac{14}{12}$ and $\frac{11}{12}$

(iii) $\frac{5}{7}, \frac{3}{8}, \frac{9}{14}, \frac{20}{21}$ $\quad \because LCM\ (7, 8, 14, 21) = 168$

$$\therefore \frac{5}{7} \times \frac{24}{24} = \frac{120}{168} \ ; \ \frac{3}{8} \times \frac{21}{21} = \frac{63}{168} \ ; \ \frac{9}{14} \times \frac{12}{12} = \frac{108}{168}$$

and $\frac{20 \times 8}{21 \times 8} = \frac{160}{168}$

docs.aglasem.com

aglasem.com