

Exercise 21

$$1. (a) 3 \div \frac{1}{2}$$

$$= \frac{3 \times 2}{1 \times 2} \div \frac{1}{2}$$

$$= \frac{6}{2} \div \frac{1}{2}$$

$$\frac{6}{2} - \frac{1}{2} = \frac{5}{2} \quad \text{--- (i)}$$

$$\frac{5}{2} - \frac{1}{2} = \frac{4}{2} \quad \text{--- (ii)}$$

$$\frac{4}{2} - \frac{1}{2} = \frac{3}{2} \quad \text{--- (iii)}$$

$$2. (a) \text{ ~~4 by } \frac{4}{3}~~$$

$$4 \div \frac{4}{5}$$

$$= \frac{4}{1} \times \frac{5}{4} = \frac{5}{1} = 5$$

$$(b) 13 \div \frac{1}{6}$$

$$= \frac{13}{1} \times \frac{6}{1}$$

$$= \frac{78}{1} = 78$$

$$(c) 15 \div \frac{1}{8}$$

$$= \frac{15}{1} \times \frac{8}{1}$$

$$= \frac{120}{1} = 120$$

$$3. (a) 6 \text{ by } \frac{2}{3}$$

$$= \frac{6}{1} \div \frac{2}{3}$$

$$= \frac{3 \cancel{6}}{1} \times \frac{3}{2} = \frac{9}{1} = 9$$

$$(b) 15 \text{ by } \frac{3}{4}$$

$$= \frac{15}{1} \div \frac{3}{4}$$

$$= \frac{5 \cancel{15}}{1} \times \frac{4}{3} = \frac{20}{1} = 20$$

$$(c) 16 \text{ by } \frac{8}{9}$$

$$= \frac{16}{1} \div \frac{8}{9}$$

$$= \frac{2 \cancel{16}}{1} \times \frac{9}{8} = \frac{18}{1} = 18$$

$$(d) 20 \text{ by } \frac{5}{4}$$

$$= \frac{20}{1} \div \frac{5}{4}$$

$$= \frac{4 \cancel{20}}{1} \times \frac{4}{5}$$

$$= \frac{16}{1} = 16$$

$$(e) 36 \text{ by } \frac{9}{5}$$

$$= \frac{36}{1} \div \frac{9}{5}$$

$$= \frac{4 \cancel{36}}{1} \times \frac{5}{9}$$

$$= \frac{20}{1} = 20$$

$$(f) 45 \text{ by } \frac{5}{9}$$

$$= \frac{45}{1} \div \frac{5}{9}$$

$$= \frac{9 \cancel{45}}{1} \times \frac{9}{5}$$

$$= \frac{81}{1} = 81$$

$$4. (a) 16 \div \frac{8}{3}$$

$$= \frac{16}{1} \times \frac{3}{8}$$

$$= \frac{6}{1} = 6$$

$$(b) 21 \div 3\frac{1}{2}$$

$$= \frac{21}{1} \div \frac{7}{2}$$

$$= \frac{21}{1} \times \frac{2}{7} = \frac{6}{1} = 6$$

$$(c) 25 \div 7\frac{1}{2}$$

$$= \frac{25}{1} \div \frac{15}{2}$$

$$= \frac{25}{1} \times \frac{2}{15} = \frac{10}{3}$$

$$(d) 35 \div 3\frac{3}{4}$$

$$= \frac{35}{1} \div \frac{15}{4}$$

$$= \frac{35}{1} \times \frac{4}{15} = \frac{28}{3}$$

$$(e) 67 \div 9\frac{4}{7}$$

$$= \frac{67}{1} \div \frac{67}{7}$$

$$= \frac{67}{1} \times \frac{7}{67} = \frac{7}{1} = 7$$

$$(f) 99 \div 2\frac{5}{47}$$

$$= \frac{99}{1} \div \frac{99}{47}$$

$$= \frac{99}{1} \times \frac{47}{99} = \frac{47}{1} = 47$$

$$5. (a) 7 \div \frac{1}{5} = 7 \times 5 \quad \boxed{T}$$

$$(b) 18 \div \frac{3}{5} = 18 \times \frac{3}{5} \quad \boxed{F}$$

↓
(5/3)

$$(c) 36 \div 4\frac{1}{2} = \frac{1}{36} \times 4\frac{1}{2} \quad \boxed{F}$$

$$(d) 136 \div 8\frac{7}{56} = \frac{1}{136} \times 8\frac{7}{56} \quad \boxed{F}$$