

Multiply and divide improper and mixed fractions



- 1 Dora and Teddy are working out $3\frac{1}{2} \times \frac{1}{5}$

Dora

$$3\frac{1}{2} \times \frac{1}{5} = 3 \times \frac{1}{5} + \frac{1}{2} \times \frac{1}{5}$$

$$= \frac{3}{5} + \frac{1}{10}$$

$$= \frac{6}{10} + \frac{1}{10} = \frac{7}{10}$$

Teddy

$$3\frac{1}{2} \times \frac{1}{5} = \frac{7}{2} \times \frac{1}{5}$$

$$= \frac{7}{10}$$

Whose method do you prefer? Talk about it with a partner.



- 2 Complete the calculations. Show all your workings.

a) $2\frac{2}{3} \times \frac{1}{3} = \square$

d) $5\frac{1}{2} \times 3 = \square$

b) $3\frac{1}{6} \times 2 = \square$

e) $3 \times 2\frac{3}{4} = \square$

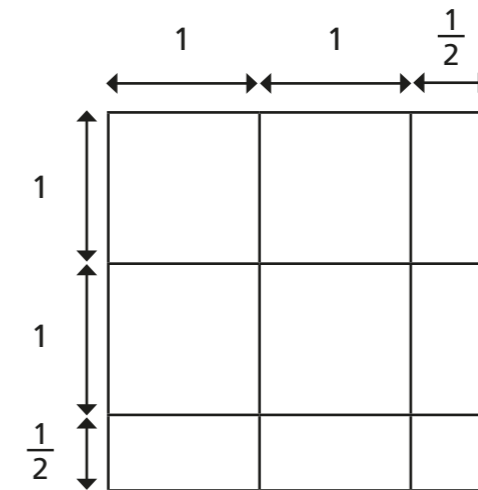
c) $5 \times 1\frac{3}{10} = \square$

f) $2 \times 1\frac{3}{5} \times 3 = \square$

- 3 Dexter works out $(2\frac{1}{2})^2$

$$2\frac{1}{2} \times 2\frac{1}{2} = \frac{5}{2} \times \frac{5}{2} = \frac{25}{4} = 6\frac{1}{4}$$

Use the diagram to show that Dexter's answer is correct.



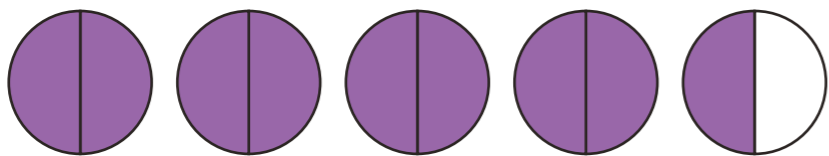
- 4 Work out these multiplications.

a) $2\frac{2}{3} \times 2\frac{1}{3} = \square$

c) $\frac{9}{10} \times 3\frac{1}{4} = \square$

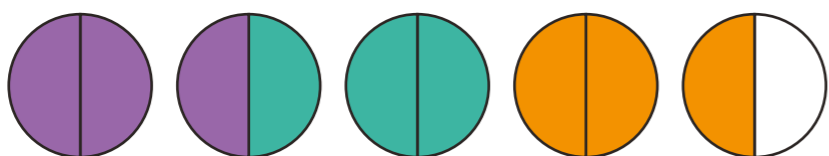
b) $3\frac{5}{6} \times 2\frac{1}{2} = \square$

- 5 a) How does the diagram represent $4\frac{1}{2} \div \frac{1}{2} = 9$?



Discuss it with a partner.

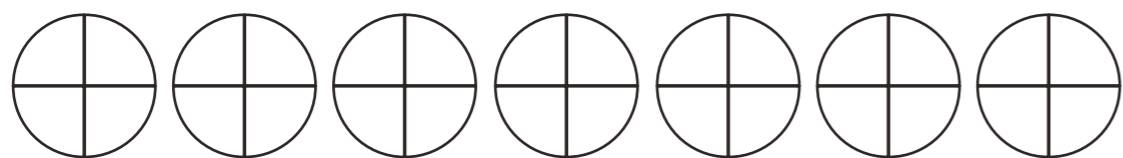
- b) How does this diagram represent $4\frac{1}{2} \div 1\frac{1}{2} = 3$?



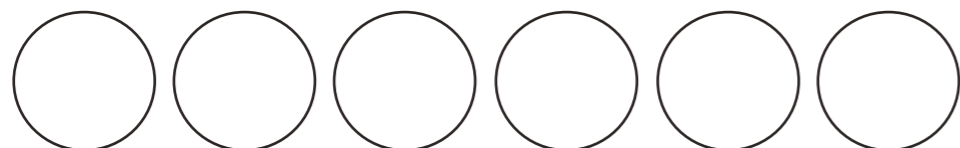
Discuss it with a partner.

- c) Complete the calculations. Use the diagrams to help you.

$$6\frac{1}{4} \div 1\frac{1}{4} = \square$$



$$5\frac{1}{3} \div 1\frac{1}{3} = \square$$



- 6 Complete the calculations.

a) $3\frac{1}{2} \div 2 = \square$

c) $3\frac{1}{2} \div 2\frac{1}{4} = \square$

b) $3\frac{1}{2} \div 2\frac{1}{2} = \square$

d) $6\frac{1}{4} \div 3\frac{1}{8} = \square$

- 7 a) How many pieces of wood $1\frac{3}{4}$ m long can be cut from a length of 9 m?

- b) Find the area of a triangle with a base of $3\frac{5}{8}$ cm and perpendicular height of $2\frac{1}{2}$ cm.

- c) A parallelogram with a base of 3.25 cm has an area of 12.6 cm^2 . Use fractions to work out the height of the parallelogram.