Week 1- power maths answers

Day 1:

→ pages 107–109

1. a) $5 \times \frac{1}{7} = \frac{5}{7}$

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

c) $9 \times \frac{1}{4} = \frac{9}{4} = 2\frac{1}{4}$. Mike needs $2\frac{1}{4}$ bananas for 9 cakes.

2. a) $7 \times \frac{1}{8} = \frac{7}{8}$ $\frac{1}{8} \times 7 = \frac{7}{8}$

b) $\frac{1}{10} \times 7 = \frac{7}{10}$ $7 \times \frac{1}{10} = \frac{7}{10}$

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

3. a) $\frac{1}{5} \times 2 = \frac{2}{5}$ b) $\frac{1}{7} \times 6 = \frac{6}{7}$

4. a) $5 \times \frac{1}{2} = \frac{5}{2} = 2\frac{1}{2}$

b) $\frac{1}{4} \times 7\text{ kg} = \frac{7}{4}\text{ kg} = 1\frac{3}{4}\text{ kg}$

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

d) $\frac{1}{8} \times 8 = 1$

e) $\frac{1}{5} \times 9 = \frac{9}{5} = 1\frac{4}{5}$

f) $11 \times \frac{1}{3}\text{ l} = \frac{11}{3}\text{ l} = 3\frac{2}{3}\text{ l}$

5. a) $\frac{1}{5} \times 7 = 1\frac{2}{5}$ b) $\frac{1}{8} \times 9 = 1\frac{1}{8}$

6. a) This is false because 0 multiplied by anything equals zero.

b) This is true because $8 \times \frac{1}{8} = \frac{8}{8} = 1$ whole

c) This is true because $\frac{1}{8} \times 6 = \frac{6}{8} = \frac{3}{4}$

7. a) $\frac{1}{10} \times 6 = \frac{3}{5}$ b) $\frac{1}{6} \times 8 = 1\frac{1}{3}$

Reflect

Answers may vary, for example, $\frac{1}{5} \times 4$ or $4 \times \frac{1}{5}$ or $\frac{1}{10} \times 8$.

Explanations will vary. Children may say they know that 4 lots of $\frac{1}{5}$ is equal to $\frac{4}{5}$. As multiplication is commutative, this means they can write the numbers either way round.

Encourage children to further prove their answers with a pictorial representation.

Day 2:

→ pages 110–112

1. $\frac{3}{10} \times 3 = \frac{9}{10}$
There are $\frac{9}{10}$ of a pizza in total.

2. $\frac{3}{8} \times 5 = \frac{15}{8} = 1\frac{7}{8}$
There are $1\frac{7}{8}$ litres of milk in total.

3. a) $\frac{3}{5} \times 4 = \frac{12}{5} = 2\frac{2}{5}$
b) $2 \times \frac{7}{9} = \frac{14}{9} = 1\frac{5}{9}$

4. a) $2\frac{8}{11}$ c) $5\frac{1}{4}$
b) 5 d) $6\frac{3}{5}$

5. a) $6\frac{3}{10}$ b) $5\frac{19}{10}$

6. a) $\frac{3}{7} \times 11 = \frac{33}{7}$ $\frac{3}{7} \times 11 = 4\frac{5}{7}$
b) $\frac{5}{8} \times 5 = \frac{25}{8}$ $\frac{5}{8} \times 5 = 3\frac{1}{8}$
c) $\frac{4}{9} \times 10 = 4\frac{4}{9}$
d) $13 \times \frac{3}{10} = 3\frac{9}{10}$

Reflect

Explanations may vary. The size of the parts (7ths as shown by the denominator 7) stays the same, but there are 5 times more of them. The denominator will stay the same but the numerator will be multiplied by 5.

Day 3:

→ pages 113–115

1. $2 \times 3 = 6$
$\frac{3}{4} \times 3 = \frac{9}{4} = 2\frac{1}{4}$
$6 + 2\frac{1}{4} = 8\frac{1}{4}$
The horse eats $8\frac{1}{4}$ carrots over 3 days.

2. $6\frac{7}{8}$

3. Laura runs $17\frac{1}{2}$ km from Monday to Friday.

4. Disagree – although in both equations the whole parts make 12, $\frac{1}{3} \times 4 = \frac{4}{3}$, whilst $\frac{1}{3} \times 3 = 1$. This means that the two equations are not equal.

5. a) $44\frac{2}{5}$ b) 50

6. 32 full glasses of lemonade can be poured.

Reflect

Agree. Children could use pictorial representations to prove they are equal. Children should advise Max to turn the top-heavy fraction $\frac{15}{4}$ into a mixed number $3\frac{3}{4}$ and add this to the 10 to get $13\frac{3}{4}$.

Day 4:

→ pages 116–118

1. a) $1\frac{3}{5} = \frac{8}{5}$

$\frac{8}{5} \times 2 = \frac{16}{5} = 3\frac{1}{5}$ kg

b) $\frac{8}{5} \times 3 = \frac{24}{5} = 4\frac{4}{5}$ kg

c) $\frac{8}{5} \times 4 = \frac{32}{5} = 6\frac{2}{5}$ kg

2. $11\frac{1}{4}$ m of sticky tape is needed to seal 5 boxes.

3. a) $1\frac{2}{3} \times 3 = \frac{5}{3} \times 3$

$= \frac{15}{3}$

$= 5$

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

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

$= \frac{35}{3}$

$= 11\frac{2}{3}$

d) $10 \times 1\frac{2}{3} = 10 \times \frac{5}{3}$

$= \frac{50}{3}$

$= 16\frac{2}{3}$

4. a) Yes, Louise does meet her target. She rows $13\frac{1}{2}$ km in 5 days.

b) It will take Louise 8 days to cycle more than 12 km.

5. a) Circle: $1\frac{2}{3} \times 10$

b) Circle: $2\frac{2}{7} \times 13$

Explanations will vary, for example, $5 \times 8 = 40$ so $5\frac{1}{5} \times 8$ will be greater than 40; $3 \times 13 = 39$ so $2\frac{2}{7} \times 13$ will be less than 39 so will be less than $5\frac{1}{5} \times 8$.

6. $2\frac{3}{8} \times 15 = \boxed{35}\frac{\boxed{5}}{\boxed{8}}$ $\boxed{7}\frac{\boxed{1}}{8} \times 5 = \boxed{35}\frac{\boxed{5}}{\boxed{8}}$

$11\frac{7}{8} \times \boxed{3} = \boxed{35}\frac{\boxed{5}}{\boxed{8}}$

Reflect

$2\frac{4}{5} \times 6 = 16\frac{4}{5}$. Methods may vary. Encourage children to use an efficient method such as multiplying the whole number part and the fractional part separately then recombining the answer.

Day 5:

→ pages 119–121

1. $50 \div 10 = 5$
$5 \times 3 = 15$
15 balloons are red.

2. Bar model: whole = 30; each part = 5
There are 25 yellow counters in the box.

3. a) £20
b) 28 kg
c) £440
d) £520

4. Bella's number is 54.
Ebo's number is 27.

5. The string is 32 cm long.
Lexi has not realised that we are not finding $\frac{3}{4}$ of 24, but that $\frac{3}{4}$ of the string is 24 cm. Lexi first needs to divide 24 by 3 to find $\frac{1}{4}$ and then times by 4 to find the whole length of the string.

6. There are 70 pages in the book.

Reflect

$\frac{2}{3}$ of 24 = 16

$\frac{2}{3}$ of a number is 24. The number is 36

Both calculations involve division and then multiplication, however in the first calculation children need to divide by the denominator and then multiply by the numerator. The second calculation involves dividing by the numerator first and then multiplying by the denominator.