Year 8 Fractions and Recurring Decimals – Challenge

ANSWER KEY HappyKids.fit

Answers and worked solutions · 8 questions

A. Think like a mathematician

1. **Both parts must be multiplied: 4 × 4 = 16 and 4 × 1/2 = 2, so the answer is 18.**
   Error: only the whole number was multiplied
   4 × 1/2 = 2
   Total: 18

2. **Dividing by a proper fraction gives a bigger answer: 9 ÷ 3/4 = 9 × 4/3 = 12.**
   Error: multiplied by the fraction instead of dividing
   9 × 4/3
   = 12

3. **Dividing by a proper fraction gives a bigger answer: 8 ÷ 4/5 = 8 × 5/4 = 10.**
   Error: multiplied by the fraction instead of dividing
   8 × 5/4
   = 10

4. **No. Counter-example: 1/3 = 0.333..., which recurs for ever.**
   Test an example
   Counter-example: 1/3 = 0.333..., which recurs for ever.
   Decide

5. **Yes. 40 = 2^3 × 5 has no prime factors other than 2 and 5, e.g. 7/40 = 0.175.**
   Test an example
   40 = 2^3 × 5 has no prime factors other than 2 and 5, e.g. 7/40 = 0.175.
   Decide

6. **Yes. A proper fraction is less than 1, so it fits in more than once, e.g. 4 ÷ 1/2 = 8.**
   Test an example
   A proper fraction is less than 1, so it fits in more than once, e.g. 4 ÷ 1/2 = 8.
   Decide

7. **12 bottles**
   9 ÷ 3/4 = 9 × 4/3
   = 12

8. **17**
   1.7 × (6.3 + 3.7) = 1.7 × 10
   = 17