Year 8 Decimals – Challenge

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Answers and worked solutions · 8 questions

A. Think like a mathematician

1. **Multiply both numbers by 10: 10 ÷ 2 = 5. Dividing by a number less than 1 gives a bigger answer.**
   Error: the answer should be bigger than the number divided
   1 ÷ 0.2 = 10 ÷ 2
   = 5

2. **Multiply both numbers by 10: 49 ÷ 7 = 7. Dividing by a number less than 1 gives a bigger answer.**
   Error: the answer should be bigger than the number divided
   4.9 ÷ 0.7 = 49 ÷ 7
   = 7

3. **−1.5 is further below 0 than −1.45, so −1.5 < −1.45.**
   Error: for negative numbers the larger digits are further from 0
   On a number line, further left is smaller
   −1.5 < −1.45

4. **No. Counter-example: 4 × 1.5 = 6, which is bigger. Only multiplying by a number between 0 and 1 makes a positive number smaller.**
   Test an example
   Counter-example: 4 × 1.5 = 6, which is bigger. Only multiplying by a number between 0 and 1 makes a positive number smaller.
   Decide

5. **No. −0.6 = −0.60 is further below 0 than −0.58, so −0.6 < −0.58.**
   Test an example
   −0.6 = −0.60 is further below 0 than −0.58, so −0.6 < −0.58.
   Decide

6. **No: 7.5 × 3.3 ≈ 8 × 3 = 24, so the answer should be about 24 (it is 24.75).**
   Estimate: 8 × 3 = 24
   2.475 is about 10 times too small
   Exact: 24.75

7. **$36.00**
   28.8 × 1.25 = 36
   To the nearest cent: $36.00

8. **−1.85, 0.25**
   ≤ includes the end value; < does not
   Check each value against both ends: −1.85, 0.25