Fractions, Decimals & Percentages: Medium Practice Paper 9 Answers

Q#	Answer	Explanation
1	D	3/6 is exactly 1/2 and 3/9 is exactly 1/3. A bigger bottom number makes a smaller fraction, so the bottom number must be more than 6 and less than 9. Of the choices only 7 fits, and 3/7 lies between 1/3 and 1/2. 3/5 is more than a half and 3/10 is less than a third.
2	C	Red and blue together are 1/3 + 1/2 = 5/6 of the bag, because 2/6 + 3/6 = 5/6. That leaves 1/6 of the bag for the green marbles. If 1/6 of the bag is 5 marbles, the whole bag is 6 × 5 = 30 marbles. Check: 10 red, 15 blue and 5 green make 30.
3	B	If 20% is taken off, the customer pays 100 − 20 = 80, so 80% of the price. 80% is 80/100, and dividing the top and the bottom by 20 gives 80/100 = 4/5. 1/5 is the fraction taken off, not the fraction paid.
4	E	10% of 80 is 80 ÷ 10 = 8. 5% is half of 10%, so it is 8 ÷ 2 = 4. Ali adds 8 + 4 = 12, so 15% of 80 is 12.
5	A	If 85% are right, then 100 − 85 = 15, so 15% are wrong. 10% of 40 is 4 and 5% of 40 is 2, so 15% of 40 is 4 + 2 = 6. Zara gets 6 wrong and 34 right.
6	D	Work backwards. Before buying the pen he had twice as much as £6, which is 6 × 2 = 12, so £12. Before buying the book he had twice as much again: 12 × 2 = 24. He started with £24. Check: half of £24 is £12, and half of £12 is £6.
7	E	6 and 9 can both still be divided by 3, so 6/9 is not finished. Dividing the top and the bottom by 3 gives 2/3, and nothing bigger than 1 divides into both 2 and 3. Zoe could have got there in one step by dividing 12 and 18 by 6.
8	C	17/5 means 17 ÷ 5. Since 3 × 5 = 15 and 4 × 5 = 20, and 17 lies between 15 and 20, the fraction lies between 3 and 4. As a mixed number it is 3 wholes and 2 fifths.

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9	D	The percentages must add up to 100, so juice is 100 − 35 − 40 − 10 = 15, which is 15%. 10% of 200 is 20 and 5% of 200 is 10, so 15% of 200 is 20 + 10 = 30 people. The trap is to stop at 15, which is the percentage and not the number of people.
10	B	Ben added 1 + 1 to get 2 and 2 + 3 to get 5, which is not how fractions are added. The fractions must first be written with the same bottom number: 1/2 is 3/6 and 1/3 is 2/6. Then 3/6 + 2/6 = 5/6. His answer of 2/5 is less than 1/2, which shows it cannot be right.
11	D	Write 1/2 in sixths: it is 3/6. The missing fraction is 5/6 − 3/6 = 2/6, and 2/6 simplifies to 1/3. Check: 1/2 + 1/3 = 5/6.
12	A	Change both scores to fractions out of 100. Multiply the top and bottom of Amy's score by 5: 17/20 = 85/100, which is 85%. Multiply the top and bottom of Ben's score by 4: 21/25 = 84/100, which is 84%. Amy is higher by 85 − 84 = 1, so by 1%, even though Ben got more questions right.
13	E	3/4 as a decimal is 0.75. To undo multiplying by 10, divide by 10: 0.75 ÷ 10 = 0.075. Check: 0.075 × 10 = 0.75.
14	E	The multiples of 4 up to 20 are 4, 8, 12, 16 and 20, which is 5 numbers out of 20. Multiplying the top and bottom by 5 gives 5/20 = 25/100, which is 25%. The trap is to answer 5%, which is the count and not the percentage.
15	B	The number of white squares is 20 − 7 − 5 = 8. As a fraction that is 8/20. Multiplying the top and bottom by 5 gives 8/20 = 40/100, which is 40%.

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