Answers - Percentages

Year: Year 5

Answer to Question 1

a. 45 out of 100 squares: **45%**.
b. $\frac{45}{100} = \frac{9}{20}$ (divide by 5).
c. 45 ÷ 100 = **0.45**.
d. 100% − 45% = **55%**.

Answer to Question 2

a. 45% = $\frac{45}{100} = \frac{9}{20}$ = **0.45**.
b. 60% = $\frac{60}{100} = \frac{3}{5}$ = **0.6**.
c. 8% = $\frac{8}{100} = \frac{2}{25}$ = **0.08**.
d. 35% = $\frac{35}{100} = \frac{7}{20}$ = **0.35**.
e. 90% = $\frac{90}{100} = \frac{9}{10}$ = **0.9**.

Answer to Question 3

a. $\frac{7}{100}$ = **7%**.
b. 0.6 = 0.60 = **60%**.
c. 0.05 = **5%**.
d. $\frac{3}{10} = \frac{30}{100}$ = **30%**.
e. $\frac{1}{4} = \frac{25}{100}$ = **25%**.
f. $\frac{4}{5} = \frac{80}{100}$ = **80%**.

Answer to Question 4

a. $\frac{3}{20}$: 20 × 5 = 100, so multiply the top by 5 too: 3 × 5 = 15. **15%**.
b. $\frac{7}{25}$: 25 × 4 = 100, so multiply the top by 4 too: 7 × 4 = 28. **28%**.
c. $\frac{9}{50}$: 50 × 2 = 100, so multiply the top by 2 too: 9 × 2 = 18. **18%**.
d. $\frac{13}{20}$: 20 × 5 = 100, so multiply the top by 5 too: 13 × 5 = 65. **65%**.

Answer to Question 5

a. Change to percentages: $\frac{3}{5}$ = 60%, 0.58 = 58%, 62%, $\frac{1}{2}$ = 50%, 0.7 = 70%.
b. In order: 50%, 58%, 60%, 62%, 70%. So the order is $\frac{1}{2}$**, 0.58,** $\frac{3}{5}$**, 62%, 0.7**.

Answer to Question 6

a. 50% of 80: 80 ÷ 2 = **40**.
b. 25% of 60: 60 ÷ 4 = **15**.
c. 10% of 350: 350 ÷ 10 = **35**.
d. 20% of 45: 45 ÷ 5 = **9**.
e. 75% of 40: 3 × (40 ÷ 4) = 3 × 10 = **30**.
f. 30% of 90: 3 × (90 ÷ 10) = 3 × 9 = **27**.

Answer to Question 7

a. 100% − 84% = **16%**.
b. 84% − 39% = **45 percentage points**.
c. 39 ÷ 100 = **0.39**.
d. 39% + 45% = **84%**.

Answer to Question 8

a. 25% of £48 = 48 ÷ 4 = £12. Sale price: 48 − 12 = **£36**.
b. 10% of £20 = £2. Sale price: 20 − 2 = **£18**.
c. 50% of £60 = £30. Sale price: 60 − 30 = **£30**.
d. 36 + 18 + 30 = **£84**.

Answer to Question 9

a. Ali: $\frac{18}{20}$ = 90%. Beth: $\frac{21}{25}$ = 84%. Chen: $\frac{40}{50}$ = 80%. Dina: $\frac{9}{10}$ = 90%.
b. **Ali and Dina** both got 90%.
c. **Chen** got the lowest (80%).
d. **Ali = Dina (90%), Beth (84%), Chen (80%)**.

Answer to Question 10

a. 10% of 120 = 12. 35% = 3 × 12 + 6 = 36 + 6 = **42 children**. (5% is half of 12 = 6.)
b. 25% of 120 = 120 ÷ 4 = **30 children**.
c. 35% + 25% + 10% = 70%. So 100% − 70% = **30%**.
d. 30% of 120 = 3 × 12 = **36 children**.
e. 10% = $\frac{10}{100}$ = $\frac{1}{10}$.

Answer to Question 11

a. 10% of 20 = 2, so 60% = 6 × 2 = **12 matches**.
b. 25% of 20 = 20 ÷ 4 = **5 matches**.
c. 100% − 60% − 25% = **15%**. 15% of 20 = 2 + 1 = **3 matches**.
d. 12 × 3 = 36 and 5 × 1 = 5. Total **41 points**.

Answer to Question 12

a. 20% of £15 = 15 ÷ 5 = **£3**.
b. 40% of £15 = 2 × £3 = **£6**.
c. 100% − 20% − 40% = **40%**. 40% of £15 = **£6**.
d. 10 × £3 = **£30**.

Answer to Question 13

a. 20% of 500 = 500 ÷ 5 = **100 ml**.
b. 100% − 20% = **80%**.
c. 500 − 100 = **400 ml**.
d. 25% of 400 = 100 ml. Both bottles have **the same amount, 100 ml**, of orange juice.

Answer to Question 14

a. 10% of 40 = 4, so 16 children is 4 × 10% = **40%**.
b. 10 children = 2.5 × 4 children, so **25%** (10 ÷ 40 = $\frac{1}{4}$).
c. Tennis 6 out of 40 = 15% and gymnastics 8 out of 40 = 20%, so together **35%**.
d. 40% + 25% + 15% + 20% = **100%**. ✓

Answer to Question 15

a. Bag 25% of 40 = **£10**. Pencil case 50% of 12 = **£6**. Calculator 10% of 30 = **£3**. Lunch box 20% of 15 = **£3**.
b. Bag 40 − 10 = **£30**. Pencil case 12 − 6 = **£6**. Calculator 30 − 3 = **£27**. Lunch box 15 − 3 = **£12**.
c. 30 + 27 = **£57**.
d. The biggest reduction in pounds is the **school bag (£10)**; the biggest percentage is the **pencil case (50%)**.
e. Pencil case saves £6 and the lunch box saves £3, so **yes**, she is right.

Answer to Question 16

a. 25 × 4 = 100, so a fraction out of 25 is changed to out of 100 by multiplying both numbers by 4.
b. Dog 10 × 4 = **40%**; Cat 7 × 4 = **28%**; Rabbit 3 × 4 = **12%**; Fish 5 × 4 = **20%**.
c. **Dogs** got $\frac{10}{25} = \frac{2}{5}$ = 40%.
d. Dogs and fish: 40% + 20% = 60%, which is more than 50%. **Yes**, she is right.

Answer to Question 17

a. 10% of 60 = 6, so 40% = **24**.
b. 25% of 60 = 60 ÷ 4 = **15**.
c. 100 − 40 − 25 = **35%**. 35% of 60 = 21: **21 grapes**.
d. Grapes 21 + 20 = 41, total pieces 60 + 20 = 80. Fraction $\frac{41}{80}$, which is already in its simplest form.
e. $\frac{41}{80}$ = 51.25% so **51%** to the nearest whole number.

Answer to Question 18

a. 100% − 85% = **15 percentage points**.
b. Losses: 15, 25, 15, 25. The most is **25 points**, between 10 am and 12 noon (and also between 2 pm and 4 pm).
c. 20% = $\frac{20}{100} = \frac{1}{5}$.
d. From 2 pm to 4 pm it lost 45 − 20 = 25 points. At 6 pm it would be 20 − 25 = −5, which is below 5%. So it **turns off before 6 pm**.

Answer to Question 19

a. Anna: $\frac{3}{5} = \frac{60}{100}$ = **60%**. Ben: 0.65 = **65%**. Cara: **62%**.
b. **Ben** ate the biggest share (65%) and **Anna** the smallest (60%).
c. **Anna (60%), Cara (62%), Ben (65%)**.
d. Dan ate $\frac{7}{10}$ = 70%. All three ate less than Dan: **Anna, Ben and Cara**.
e. 0.75 = 75% and $\frac{3}{4}$ = 75%, but 70% is not 75%. So Eve is **wrong**.

Answer to Question 20

a. 10% of 200 = **£20**.
b. 10% = £20 and 5% = £10, so 15% = **£30**.
c. 25% of 200 = **£50**.
d. 20 + 30 + 50 = £100 spent. £200 − £100 = **£100**, which is **50%**.
e. Exactly half is left, 50%. She is **not right**: it is equal to half, not less.

Answer to Question 21

a. 10% of 100 = 10. 100 + 10 = **£110**.
b. 10% of 110 = 11. 110 − 11 = **£99**.
c. **No**. The second 10% is taken from a bigger amount (£110), so more is taken off than was added. The final price is £1 less.
d. 10% of 50 = 5, so the price goes to £55. 10% of 55 = 5.50, so the price goes to **£49.50**.