
UCAT QUANTITATIVE REASONING QUESTION PACK 1 (MARK SCHEME)



Data set 1 (QR0002)

1. Answer: (D) £120.75

4 individual photographs with photoshop is $4 \times 1.15 \times 20 = 92$.

2 x family photographs with photoshop is $2 \times 1.15 \times 30 = 69$.

Total = 161

Applying the discount (25% because she's ordered 6) = £120.75.

2. Answer: (C) £70.25

1 dog with photoshop: $17.50 \times 1.15 = 20.125$

Plus props and background: $20.125 + 5 + 10 = 35.125$

2 dogs: $35.125 \times 2 = 70.25$

3. Answer: (B) £11.00

$70.25 + 20 = 90.25$

$90.25 \times 0.9 = 81.225$

$81.225 - 70.25 = 10.975$

To the nearest pound = £11.00

4. Answer: (B) £131.75

Baby = $25 + 5 + 10$

2 individual = $2 \times (20 + 5 + 10)$

Family = $30 + 5 + 10$

Total = 155

4 portraits gives 15% discount so $155 \times 0.85 = 131.75$



Data set 2 (QR0028)

1. Answer: (B) 3
The cumulative frequency reaches 30 when x-axis is at 3.
2. Answer: (D) 4
The difference in cumulative frequency is $28 - 24 = 4$.
3. Answer: (A) 1
The difference in those who had been to 0 is $6 - 5 = 1$.
4. Answer: (D) 19
Class 1: $10 - 5 = 5$.
Class 2: $20 - 6 = 14$.
 $14 + 5 = 19$.

Data set 3 (QR0024)

1. Answer: (A) £4657.54
 $46,672 \times 0.24 = 11,201.28$.
 $11,201.28 - 6,543.74 = 4657.54$.
2. Answer: (D) 24%
 $46,672 \times 0.2 = 9334.4$
 $9334.4 / 38,463 \times 100 = 24.27 = 24\%$
3. Answer: (E) £40,329
 $5646 / 14 \times 100 = 40,328.57 = 40,329$
4. Answer: (B) £2334
 $25\% - 20\% = 5\%$
 $£46,672 \times 0.05 = 2333.6 = 2334$



Data set 4 (QR0021)

1. Answer: (B) 2 oz
 $2.5 \times 135 = 337.5$
 $337.5 \times 0.0353 = 11.91 = 12.00$

Data set 5 (QR0025)

1. Answer: (D) Two sold the same number.
Items B and C each sold 160 copies.
2. Answer: (D) £3950
 $(100 \times 25) + (25 \times 25) + (25 \times 25) + (20 \times 10) = 3950$
3. Answer: (B) 5
In quarters 1 and 2 (January to June) 125 were sold in total.
 $125 - 120 = 5$.
4. Answer: (B) 20
Total sales for the tablets in quarters 1 and 2 is 60.
Of this 2 times as many were by employee X as employee Y.
 $60 \times \frac{1}{3} = 20$ so employee Y sold 20.



Data set 6 (QR0012)

1. Answer: (D) 15%

Sarah's package: 128

Jessica's package: $7 + 20 + 120 = 147$

$147 - 128 = 19$

$19 / 128 \times 100 = 14.8\% = 15\%$

2. Answer: (E) £11.00

Daily rate of 6 month premium membership: $180 / (6 \times 30) = 180 / 180 = 1$

Premium day pass = 12

$12 - 1 = 11$

3. Answer: (A) £3.60

Standard 5 classes pass per class: $50 / 5 = 10$

Student 20 classes pass per class: $128 / 20 = 6.4$

$10 - 6.4 = 3.6$

4. Answer: (B) Four premium one month passes, by £12.00

Four one month passes at premium rate (plus joining fee): $(27 \times 4) + 20 = 128$

Standard six month pass (plus joining fee): $120 + 20 = 140$

$140 - 128 = 12$





Data set 7 (QR0004)

1. Answer: (C) Abishek
2. Answer: (C) 50%
3. Answer: (D) 4
4. Answer: (C) 68%



Data set 8 (QR0017)

1. Answer: (A) 59%

In March, there were 216 cartons of orange juice served.

In April, this dropped to 88 cartons of orange juice.

$$216 - 88 = 128$$

$$128 / 216 \times 100 = 59\%$$

2. Answer: (C) 40L

January: 188 cartons of orange juice, 156 cartons of apple juice, 84 cartons of cranberry juice.

$$\text{Total: } 188 + 156 + 84 = 428$$

$$(428 \times 750) / 1000 = 321\text{L}$$

$$321 / 8 = 40.125$$

3. Answer: (B) 21%

April: 88 cartons.

June: 112 cartons.

$$112 - 88 = 24$$

$$24 / 112 \times 100 = 21\%$$

4. Answer: (D) 2310

Orange = 222. Apple = 148. Cranberry = 92.

Total: $222 + 148 + 92 = 462$ cartons.

1 serving is 150ml therefore 5 servings per carton.

$$462 \times 5 = 2310 \text{ servings.}$$



Data set 9 (QR0003)

1. Answer: (E) £63.00
 $(40 + 30) \times 0.9 = 63$
2. Answer: (C) 24%
 $(25 + 22.5 + 15) \times 0.85 = 53.125$
 $(35 + 30 + 17.5) \times 0.85 = 70.125$
 $70.125 - 53.125 = 17$
 $17 / 70.125 = 24\%$
3. Answer: (A) £41.00
 $(22.5 + 7.5) \times 0.8 = 24$
 $45 + 20 = 65$
 $65 - 24 = 41$

Data set 10 (QR0011)

1. Answer: (E) 5 hours

Explanation:

The earliest a meeting can start is 5:00 AM. New York is behind both London and Hong Kong, so we use this as the starting point of the window period.

When it is 5:00 AM in New York, it is 10:00 AM in London and 18:00 PM in Hong Kong.

Hong Kong is ahead of both New York and London, so we use this as the end point of the window period.

$23:00 \text{ PM} - 18:00 \text{ PM} = 5:00$.

There are 5 hours available for them all to have a meeting.



Data set 11 (QR0015)

1. Answer: (A) £13.20
 $4 + 4 + 6 + 2.50 = 16.5$
 $16.5 \times 0.8 = 13.2$
2. Answer: (D) £2.05
Three items: $(6 + 4 + 3) \times 0.85 = 11.05$
Two items: $(6 + 4) \times 0.9 = 9$
Cost of three items minus the cost of two items: $11.05 - 9 = 2.05$
3. Answer: (B) Rachel's, by £2.
Rachel's bundle: $0.80 \times [(6 \times 2) + 4 + 2.50 + 3] = 17.20$
Ellie's bundle: $0.80 \times [6 + 3 + (2 \times 3) + 4] = 15.20$
 $17.20 - 15.20 = 2$

Data set 12 (QR0018)

1. Answer: (C) Magnesium: 21.3. Potassium: 2.7. Bicarbonate: 357.3
To get these new values, divide the old values by 750 and multiply by 200.

