



KWAZULU-NATAL PROVINCE

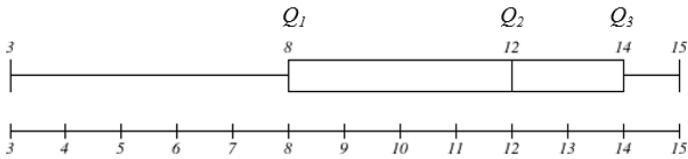
EDUCATION
REPUBLIC OF SOUTH AFRICA

**MATHEMATICS
COMMON TEST
AUGUST 2024
MARKING GUIDELINE**

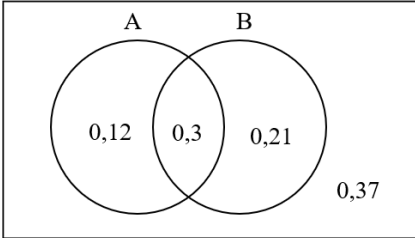
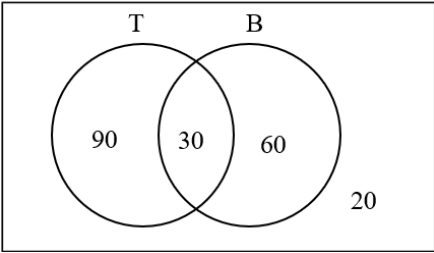
Marks: 75

This marking guideline consists of 4 pages

QUESTION 1

1.1.1	Range = $15 - 3 = 12$	✓12	(1)
1.1.2	$\bar{x} = \frac{12 + 13 + \dots + 7}{15}$ $\bar{x} = \frac{165}{15} = 11$	✓ $\frac{165}{15}$ ✓CA 11 Answer only full marks	(2)
1.1.3	12	✓12	(1)
1.1.4	$IQR = Q_3 - Q_1$ $IQR = 14 - 8 = 6$	✓ $Q_3 - Q_1$ or $14 - 8$ ✓6 Answer only full marks	(2)
1.1.5		✓min/max ✓Q1 ✓Q2 ✓Q3	(4)
1.1.6	Negatively skewed or skewed to the left. The mean < median or some very low values cause the mean to be less than the median	✓negatively/left ✓CA reason	(2)
1.2.1	50 learners	✓50	(1)
1.2.2	$30 \leq h < 40$	✓✓ $30 \leq h < 40$	(2)
1.2.3	Position of median = $\frac{1}{2}(50 + 1) = 25,5$ The median lies in the interval $30 \leq h < 40$	✓✓ $30 \leq h < 40$	(2)
1.2.4	Estimated $\bar{x} = \frac{\sum(\text{midpt} \times \text{frequency})}{n}$ $\bar{x} = \frac{(15 \times 4) + (25 \times 7) + (35 \times 15) + (45 \times 11) + (55 \times 8) + (65 \times 5)}{50}$ $= \frac{2020}{50}$ $= 40,40$	✓formula ✓substitution ✓CA simplify = $\frac{2020}{50}$ ✓CA answer Note: if learner omitted formula, award 2 marks for correct substitution	(4)
1.2.5	$\frac{8 + 5}{50} \times 100 = 26\%$	✓✓ answer	(2)
			[23]

QUESTION 2

2.1.1	$P(B) = 1 - 0,49 = 0,51$	✓0,51	(1)
2.1.2	$P(A \text{ and } B) = P(A) + P(B) - P(A \text{ or } B)$ $P(A \text{ and } B) = 0,42 + 0,51 - 0,63$ $P(A \text{ and } B) = 0,30$	✓formula ✓0,30	(2)
2.1.3		✓0,12 ✓0,21 ✓0,37	(3)
2.14	No. $P(A \text{ and } B) \neq 0$ Accept: there is an intersection/overlap of events A and B	✓No ✓correct justification	(2)
2.2			
2.2.1	$x = 30$	✓A	(1)
2.2.2	$y = 200 - (90 + 30 + 60)$ $y = 20$	✓✓A	(2)
2.2.3	$P(T) = \frac{120}{200} = \frac{3}{5} = 0,6$	✓✓A accept fraction or decimal	(2)
2.2.4	$P(\text{only } B) = \frac{60}{200} = \frac{3}{10} = 0,3$	✓✓A accept fraction or decimal	(2)
2.2.5	$P(\text{not } (T \text{ or } B)) = \frac{20}{200} = \frac{1}{10} = 0,1$	✓✓A accept fraction or decimal	(2)
2.3	3Red(R); 5Green(G); 8Blue(B); Total=16		
2.3.1	$P(G) = \frac{5}{16} = 0,3125$	✓A accept fraction or decimal	(1)
2.3.2	$P(R \text{ or } B) = \frac{11}{16} = 0,6875$	✓A accept fraction or decimal	(1)
2.3.3	$P(\text{not } R) = \frac{13}{16} = 0,8125$	✓A accept fraction or decimal	(1)
2.3.4	$P(B) = \frac{8}{15} = 0,53$	✓✓A accept fraction or decimal	(2)
			[22]

QUESTION 3

3.1.1	11°	✓ 11°	(1)
3.1.2	$\tan 11^\circ = \frac{42}{x}$ $x = \frac{42}{\tan 11^\circ}$ $x = 216,07m$	✓use of tan ✓substitution ✓✓CA answer	(4)
3.2.1	$a = -1$	✓✓A	(2)
3.2.2	$q = 1$	✓✓A	(2)
3.2.3	$y \in [0; 2]$ or $0 \leq y \leq 2$	✓upper/lower limits ✓correct notation	(2)
3.2.4	$x \in (180^\circ; 360^\circ)$ or $180^\circ < x < 360^\circ$	✓upper/lower limits ✓correct notation	(2)
3.2.5	$h(x) = -\sin x - 2$	✓ $-\sin x$ ✓ -2	(2)
			[15]

QUESTION 4

4.1	$A = P(1 + i)^n$ $254644,75 = P(1 + 0,075)^6$ $P = \frac{254644,75}{(1 + 0,075)^6}$ $P = R\ 165\ 000$	✓compound int. formula ✓substitution ✓CA answer	(3)
4.2.1	$0,15 \times 13000 = R1950$	✓R1950	(1)
4.2.2	$P = 13000 - 1950 = R\ 11050$ $A = P(1 + in)$ $A = 11050(1 + 0,22 \times 2)$ $A = R\ 15\ 912$ Monthly payments = $15\ 912 \div 24 = R\ 663$	✓simple interest formula ✓substitution ✓CA answer	(3)
4.2.3	Interest paid = $15\ 912 - 11050 = R\ 4\ 862$	✓R11050 ✓CA answer	(2)
4.3	Cost of camera in Germany in Euro = € 1025 Cost of camera in Germany in British Pounds $0,85 \times 1025 = \text{£ } 871,25$ £ 871,25 (Germany) < £ 950 (England) The camera is cheaper in Germany. Alternatively: € 1 = £ 0,85 Cost of camera in England in Euros = $950/0,85$ € 1117,64 = £ 950 € 1025 (Germany) < € 1117,64 (England) The camera is cheaper in Germany	✓ $0,85 \times 1025$ ✓answer ✓conclusion	(3)
4.4	$A = P(1 + i)^n$ $A = 65\ 000(1 + 0,055)^{20}$ $A = R\ 189\ 654,24$	✓correct formula ✓substitution ✓CA answer	(3)
			[15]
		TOTAL:	[75]