Province of the EASTERN CAPE EDUCATION

EC CURRICULUM: FET MATHEMATICS, MATHEMATICAL LITERACY AND TECHNICAL MATHEMATICS

NATIONAL SENIOR CERTIFICATE

GRADE 12

ÉcoleBooks

MATHEMATICS TOPIC TEST 1 OF 2020: STATISTICS MARKING GUIDELINES

MARKS: 20

This Marking Guidelines consists of 3 pages.

QUESTION/VRAAG 1

1.1	45 children	✓ answer (1)
1.2	$\bar{x} = \dfrac{\sum fx}{n} = \dfrac{(4\times2)+(8\times10)+(12\times9)+(16\times7)+(20\times8)+(24\times7)+(28\times2)}{45}$ $\bar{x} = \dfrac{692}{45}$ OR $\bar{x} = 15,38$ minutes ⬛ Answer only: full marks	✓ 692 ✓ answer (2)

1.3

Time taken (t) (in minutes)	Number of children	Cumulative frequency
$2 < t \le 6$	2	2
$6 < t \le 10$	10	12
$10 < t \le 14$	9	21
$14 < t \le 18$	7	28
$18 < t \le 22$	8	36
$22 < t \le 26$	7	43
$26 < t \le 30$	2	45

✓ first 4 cum freq correct
✓ last 3 cum freq correct
(2)

1.4

CUMULATIVE FREQUENCY GRAPH (OGIVE)

✓ plotting cum freq at upper limits correctly (all points)
✓ shape (smooth)
✓ grounding (2;0)
(3)

1.5	On graph at the y-value of 22,5 or 23 Median = ± 15 minutes. ⬛ Answer only: full marks	✓ graph ✓ answer (2)
		[10]

QUESTION/VRAAG 2

2.1	$a = 12,44$ $b = 0,98$ $y = 12,44 + 0,98x$ Answer only: full marks	✓ value of a ✓ value of b ✓ equation (3)
2.2.1	Percentage $= \dfrac{15}{50} \times 100$ $\qquad = 30\%$	✓ answer (1)
2.2.2	$\hat{y} = 12,44 + 0,98x$ $\hat{y} = 12,44 + 0,98(30)$ $\hat{y} = 41,84$ $\qquad = 42$ **OR** Answer only: full marks $\hat{y} = 41,87$ (if using calculator) $\hat{y} = 42$ **OR** $\hat{y} = \dfrac{21}{50}$	✓ substitution of 30 ✓ answer as integer (2) ✓ value of y ✓ answer as integer (2) ✓✓ answer (2)
2.3.1	standard deviation $= 13,88$	✓✓ answer (2)
2.3.2	$x = 50,67 - 45,67$ $\quad = 5\%$ Answer only: full marks	✓ $50,67 - 45,67$ ✓ answer (2)
		[10]

TOTAL: 20