MATHEMATICAL LITERACY: PAPER II

MARKING GUIDELINES

Time: 3 hours   150 marks

These marking guidelines are prepared for use by examiners and sub-examiners, all of whom are required to attend a standardisation meeting to ensure that the guidelines are consistently interpreted and applied in the marking of candidates' scripts.

The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines. It is also recognised that, without the benefit of attendance at a standardisation meeting, there may be different interpretations of the application of the marking guidelines.

QUESTION 1

1.1   C = 21k + 10

1.2

Cost vs weight of *Quickety Wash* special
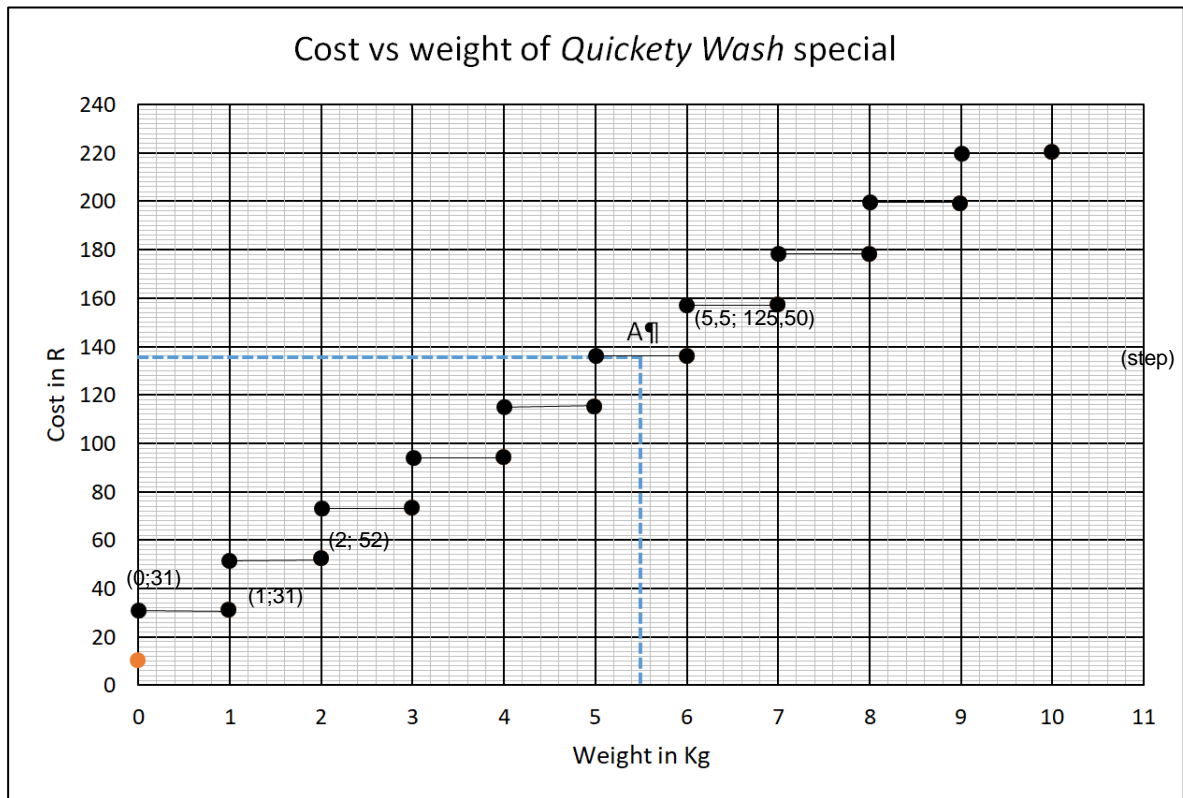
1.3   R136 (second mark: A on the graph) OR R125,50 (if straight line)

1.4   1.4.1   45 ÷ 0,000264172
                 = 170 343,564 ml ÷ 1 000
                 = 170,343 ℓ
                 ≈ 170 ℓ
                  OR
                 15 gallons = 56,8 ℓ
                 45 ÷ 15 = 3
                 56,8 × 3 = 170,4 ℓ

        1.4.2 $\dfrac{8,28-7,14}{7,14} \times 100\% = 15,97\% \approx 16\%$ ∴ incorrect.
                 OR
                 7,14 × 115,97% = 8,275 ≈ 8,28 ∴ Correct

        1.4.3   170 ÷ 1 000 = 0,17 kℓ
                 0,17 × 3 = 0,51
                 0,51 × 8,28 = R 4,22 (if not rounded they get 4,23)
                 OR
                 6 kg per week ÷ 2 kg = 3 loads
                 3 loads × 170 ℓ = 510 ℓ per week = 0,51 kℓ
                 0,51 kℓ × R8,28 = R4,22
                 OR
                 8,28 ÷ 1 000 = 0,00828
                 0,00828 × (3×170) = R4,22

1.4.4   R129 + R4,22 [from Question 1.4.3] = R133,22

1.4.5   She should do her own, it is R2,78 cheaper.

1.5   1.5.1   1,8 + 0,3 = 2,1 × 2 = 4,2
1,2 × 2 = 2,4
4,2 + 2,4 = 6,6 m
OR

$$2 \left[1,2 + 1,8 + \frac{30}{100} \right]$$
$$= 2(3,3)$$
$$= 6,6 \text{ m}$$

1.5.2   2,1 + 1,2 = 3,3
4 − 3,3 = 0,7 × 2 = 1,4 m
OR
8 m − 6,6 m = 1,4 m
OR
6,6 ÷ 4 = 1,65 ≈ 2 poles
8 m − 6,6 m = 1,4 m

1.6   1.6.1   1,2 − 0,05 = 1,15 m
1,15 ÷ 7 = 0,164 m = 16,4 cm
OR
1,2 m = 120 cm
120 cm− (2 × 2,5 cm) = 115 cm
115 cm ÷ 7 = 16,428 … = 16,4 cm

1.6.2   (4 + 3) × 16,4 = 114,8 cm
350 cm × 8 = 2 800 cm
2 800 + 114,8 = 2 914,8 cm = 29,148 m ≈ 30 m
OR
7 × 0,164 = 1,148
3,5 × 8 = 28
1,148 + 28 = 29,148 ≈ 30 m
OR
350 × 8 = 2 800
2 800 + 115 = 2 915 = 29,15 ≈30

QUESTION 2

2.1   2.1.1   26 −20 = 6

2.1.2 $\frac{281}{12} = 23,41 \approx 23$ (If only used the seven Top12s = 1 mark only)

2.1.3   23
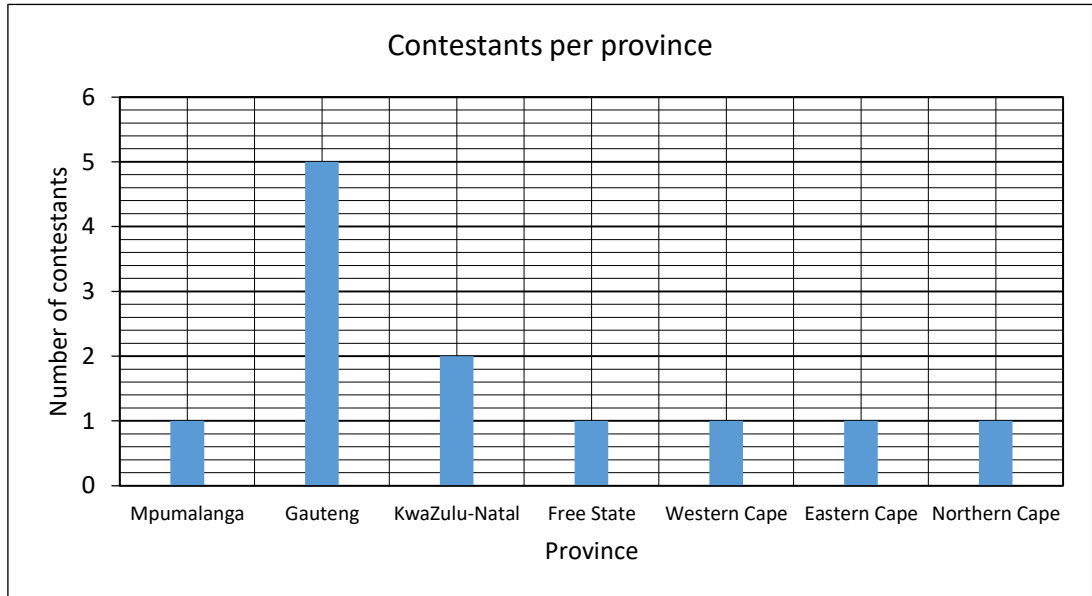
2.1.4 $\frac{23+24}{2} = 23,5$

2.1.5   There is no 3rd position because 3rd, 4th and 5th are all ranked top 5.
        OR
        It does not say it in the table (1 mark only)

2.1.6

Contestants per province

2.2   2.2.1   R25 000: R250 000: R1 000 000
                1 : 10 : 40
                OR
                R25 000: R275 000: R1 000 000
                1 : 11 : 40   (2 marks only)

        2.2.2   3 000 000– 1 000 000 – 445 500 = R1 554 500

        2.2.3 $\dfrac{1\,000\,000 - 25\,000}{25\,000} \times 100\% = 3\,900\%$

2.3   2.3.1 $5:15 + 9\dfrac{1}{3}$
                = 5:15 + 9:20
                = 14:35
                14:35 + 3:30
                = 18:05
                OR

                $5\dfrac{1}{4} + 9\dfrac{1}{3} + 3\dfrac{1}{2}$
                $= 17\dfrac{13}{12}$
                $= 18\dfrac{1}{12}$
                = 18:05

        2.3.2   14:10 + 18:05
                = 8:15 am
                13:15 – 8:15 = 5 hours ahead
                ∴ GMT +7 time zone

OR

24:00 – 14:10 = 9:50 +13:15 = 23:05 –18:05 = 5 hours
GMT2 + 5 = 7

2.3.3 $t = \dfrac{d}{s} = \dfrac{27,9}{50} = 0,558$ hours

0,558 hours = 34 minutes
13:15 + 0:34 + 0:30 = 14:19
∴ She will not get there on time.

QUESTION 3

3.1   3.1.1 $\dfrac{140\ 000\ 000}{117\ 580\ 000} = 1,1906$

= 1 : 11 : 30

3.1.2   140 million × 7 = 980 million
∴ Not exactly 1 billion/False
OR
$\dfrac{1\ 000\ 000\ 000}{140\ 000\ 000} = 7,14$ days
= 1 week and 1 day
∴ False

3.2   3.2.1   Heading and axes titles **OR** y-axis on Graph B doesn't start at zero
OR there are only 2 quarters shown for 2016 **OR** no X or Y axes
labels.

3.2.2   The y-axis increments

3.2.3   Employee – Graph B because huge change
Boss – Graph A because there is not much change in the bars

3.2.4   1,481 × 142,47% = $2,11 bill
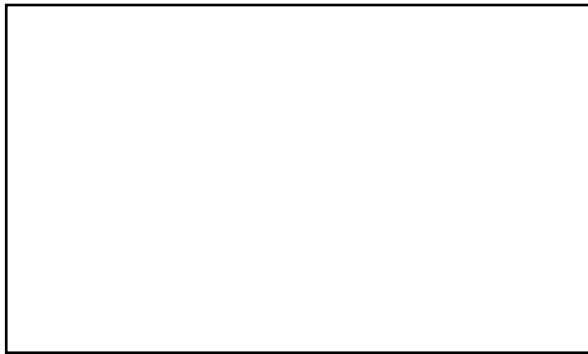**OR**
$\dfrac{x - 1,481}{1,481} \times 100\% = 42,47\%$
$x = \$2,11$ billion

QUESTION 4

4.1   Length = 7,8 cm
        Width = 4,6 cm
        (2 mm leeway in
        drawing the rectangle)

4.2   4.2.1   The mistake is that they divide volume by volume.

        4.2.2   Correct answer:

                Length: $\dfrac{6}{0,97} = 6,1 \approx 6$

                Width: $\dfrac{2,4}{0,1} = 24$

                Height: $\dfrac{2,6}{0,59} = 4,4 \approx 4$

                $6 \times 24 \times 4 = 576$ TVs He is correct

4.3   4.3.1 $\dfrac{1}{3} \times \dfrac{1}{60} = \dfrac{1}{180}$

        4.3.2   Probability increases because you have excluded a container.
                $\dfrac{1}{2} \times \dfrac{1}{60} = \dfrac{1}{120}$

4.4   4.4.1   28 930 × 18,74% [a] = ¥5 421,482
                5 421,482 × 576 = ¥3 122 773,632
                3 122 773,632 ÷ 7,82 = R399 331,67
                OR
                28 930 ÷ 7,82 = R3 699,4885
                3 699,4885 × 18,74% = 693,2841
                693,2841 × 576 = R399 331,67

        4.4.2   28 930 × 118,74% = ¥34 351,482
                34 351,482 ÷ 7,82 = R4 392,77
                OR
                R399 331 ÷ 576 = R693,28
                R693,28 + R3 699,49 = R4 392,77

        4.4.3   R4 392,77 × 115% = R5 051,6855 ≈ R5 051,69

Total: 150 marks