



education

Department:
Education
REPUBLIC OF SOUTH AFRICA

**COMMON TASK FOR ASSESSMENT (CTA)
GRADE 9 – 2008**

MATHEMATICS

TEACHER'S BOOK

SECTION A

CONTEXT:

Preparing for the arrival of guests during
the Soccer World Cup 2010
Keeping up with the latest news

Suggested Time: 4 - 5 hours

150 marks

No of pages: 15

KEY:

LEVEL	DESCRIPTION
1	K – <i>Knowledge</i> (Identifying and Recognising)
2	R – Understanding and using <i>Routine Procedures</i>
3	C – Applying and using <i>Complex Procedures</i>
4	P – Higher Order Skills and <i>Problem Solving</i>

Question	Learning Outcomes					Level Indicators			
	LO 1	LO 2	LO 3	LO 4	LO 5	1	2	3	4
						K	R	C	P
TASK 1									
Activity 1									
1.1			4			4			
1.2				2		2			
1.3				6		1	3	2	
1.4		3							3
1.5		2						2	
1.6				3			2	1	
1.7		5				3		2	
1.8	3						3		
Activity 2									
2.1			2					2	
2.2			11			11			
2.3	2		3			2			3
Activity 3									
3.1	1					1			
3.2	1							1	
3.3					6	2	3		
3.4					1		1		
3.5					2		2		
TASK 2									
Activity 1									
1.1	2					2			
1.2	3	3					2	4	
1.3	2	1				1		2	
1.4	2	1				1		2	
1.5	2					2			

Activity 2									
2.1					1		2		
2.2	1					1			
2.3	2					1	1		
2.4		13					7	6	
2.5	2						1	1	
2.6	2						1	1	
2.7	4						2	2	
2.8	8						8		
TASK 3									
Activity 1									
1.1	2						1	1	
1.2	2					2			
1.3					3	3			
1.4					1				1
1.5					4	2	2		
1.6					1				1
1.7					3				3
Activity 2									
2.1		4						3	1
2.2					2			2	
2.3				3					3
2.4				2					2
2.5	3							3	
Activity 3					4			2	2
Activity 4									
4.1					4		2	2	
4.2					2		2		
4.3					2		2		
4.4					2		1		1
	44	32	20	15	39	41	49	40	20
	29%	21%	14%	10%	26%	27%	33%	27%	13%

Key:

- ✓ (A) Accurate mark - mark is for an accurate answer
- ✓ (AC) Consistent accuracy - mark is for an answer that is consistently accurate according to candidate's working
- ✓ (M) Method mark - mark is for using the correct method which can be shown or implied
- *sub* means the mark is for the correct substitution

TASK 1

ACTIVITY 1 HOME IMPROVEMENTS

1.1 Rectangle ; circle ; trapezium ; triangle \checkmark (A) \checkmark (A) \checkmark (A) \checkmark (A) (4)
 Parallelogram; semi-circle (half-circle) (any four)

1.2 1.2.1 3200 mm = **3,2 m** \checkmark (A) (1)
 (accept 3,2)

1.2.2 0,25 m = **250 mm** \checkmark (A) (1)
 (accept 250)

1.3 1.3.1 Area of kitchen= Area of a trapezium
 $= \frac{1}{2} (\text{sum of // sides}) \times \perp \text{ distance between the // sides}$
 $= 0,5 \times (5 + 3,5) \times 2$ \checkmark (M) – use of formula or other correct method
 $= \mathbf{8,5 m^2}$ \checkmark (A) – correct values substituted
 \checkmark (A) – accurate answer

ALTERNATIVE: Area = $2 \times 3,5 + 0,5 (1,5) \times 2 = \mathbf{8,5 m^2}$ \checkmark (M) – use of correct formula
 \checkmark (A) – correct values substituted
 \checkmark (A) – accurate answer (3)

1.3.2 Area of spare room and patio = area of rectangle + area of semi-circle
 $= (2 \times 3) + 0,5 \times \pi(1,5)^2$ \checkmark (M) \checkmark (A)
 $= \mathbf{9,53\dots m^2}$ \checkmark (A) (3)
 (accept answer to any number of decimal places as well as $10 m^2$) (3)

1.4 Area of living room = 32×25 \checkmark (M) – conversion at start or end
 $= 800 \text{ cm}^2 \text{ tiles}$ \checkmark (AC) – conversion
 \checkmark (A) – answer (3)

1.5 1.5.1 Area of living-room = $3,2 \times 2,5$
 $= 8 m^2$
 1 pack of tiles covers $2 m^2$
 \therefore **need 4 packs** \checkmark (AC with answer in 1.4) (1)

1.5.2 Vinyl roll covers $2 \times 5 = 10m^2$ \therefore **need 1 roll** \checkmark (AC with answer in 1.4) (1)

1.6 Award one mark for choosing one option or the other.
 Possible discussion points for the other two marks, backing up whichever answer is given above:

- The roll is cheaper per unit area.
- The dimensions of the roll are awkward for the given area and a number of cuts would be required to get the one roll to cover the area exactly.
- Smaller square tiles would cover the area more exactly, although laying them is more time consuming leading to increased labour costs. (3)

$$\begin{aligned}
 1.7 \quad 1.7.1 \quad \text{Volume of kitchen} &= (\text{area of the floor}) \times (\text{height}) \quad \checkmark \text{ (M) use correct formula} \\
 &= 8,5 \times 2,4 \\
 &= 20,4 \text{ m}^3 \quad \checkmark \text{ (AC) with answer in 1.3.1} \\
 &= \mathbf{20 \text{ m}^3} \quad \checkmark \text{ (AC) rounding off}
 \end{aligned}
 \tag{3}$$

$$\begin{aligned}
 1.7.2 \quad \text{Volume of house} &= \text{volume of kitchen} \times 12 \\
 &= 20 \times 12 \\
 &= 240 \text{ m}^3 \quad \checkmark \text{ (M) answer to } 1.7.1 \times 12
 \end{aligned}$$

$$\text{Number of cans of spray} = \frac{240}{80} = 3 \quad \checkmark \text{ (AC)} \tag{2}$$

$$\begin{aligned}
 1.8 \quad EF &= \sqrt{2^2 + 1,5^2} \quad \checkmark \text{ (M – using Pyth Th)} \\
 &= \mathbf{2,5 \text{ m}} \quad \checkmark \text{ (A) - correct use of Pyth Th} \\
 & \quad \checkmark \text{ (AC)}
 \end{aligned}
 \tag{3}$$

[28]

2.3 2.3.1 $125 \times 4 = 500 \text{ mm}$ ✓(M)
 $180 \times 4 = 720 \text{ mm}$ ✓(AC) for both answers (2)

2.3.2 Area of original photo = $12,5 \times 18$
 = 225 cm^2 ✓ (M) using ratio of areas

Area of reduced photo = 9 cm^2

$\frac{9}{225} = \frac{1}{25}$ ✓ (M) square root of division of areas

Scale factor is : $\sqrt{\frac{1}{25}}$
 = $\frac{1}{5}$ or 0,2

✓ (AC) (3)

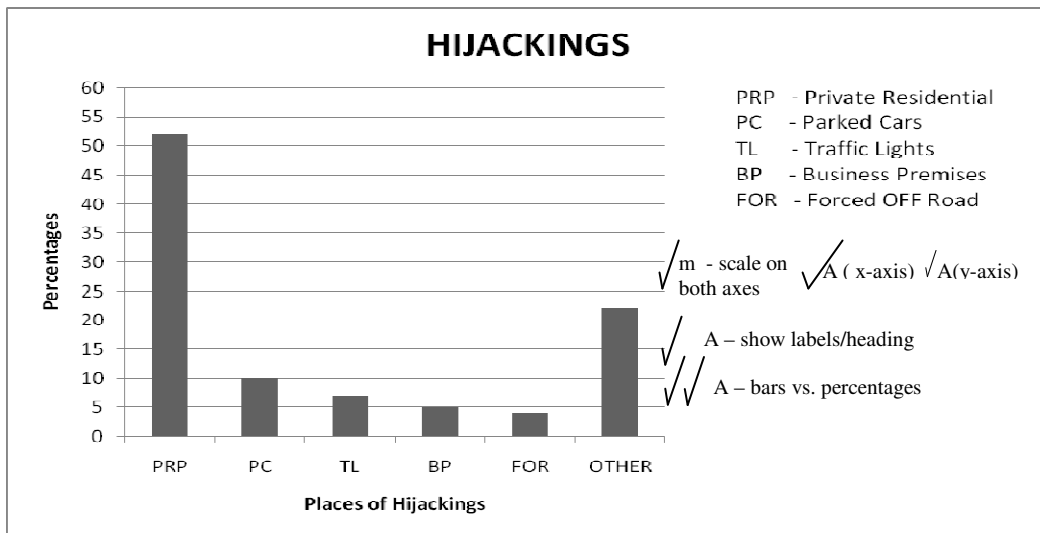
[18]

ACTIVITY 3 HIJACKING STATISTICS

3.1 $52 + 10 + 7 + 5 + 4 = 78$ ✓ (A) (1)

3.2 $100 - 78 = 22$ ✓ (AC) (1)

3.3



(6)

3.4 Those in front of residential properties. ✓ (A) (1)

3.5 “Please be careful when you arrive home after work at night because hijackers target people leaving home or returning home. Phone the Police if you see a stranger at your house. “ ✓ (A) ✓ (A) (2)
 (any sensible comments related to the article – ignore incorrect punctuation or spelling)

[11]

TASK 2

ACTIVITY 1 PROFIT-MAKING

1.1.1 250 g = **0,25 kg** ✓ (A) (1)

1.1.2 200 ml = **0,2 litres** ✓ (A) (1)

1.2.1 Tins of Pilchards:

$\frac{x}{51} = \frac{1}{6}$ ✓ (M) any correct method

$x = \frac{51}{6} = 8\frac{1}{2}$ ✓ (A)

∴ for 51 people we will need $8\frac{1}{2}$ tins ✓ (A) accept 9 tins (3)

1.2.2 Kilograms of Noodles:

$0,250 : 6 = x : 51$ OR $\frac{0,25}{6} = \frac{x}{51}$ OR $6 \times 8,5 = 51$ ✓ (M) ratios

∴ $6x = 0,25 \times 51$ ∴ $0,25 \times 8,5$ ✓ (A)

∴ $x = 2,125$ kg = $2,125$ kg ✓ (M)

(conversion to kg : 250 g to 0,25 kg - accept 2,2 or 2,13 or 2,25 or 2,5 or 3 kg) (3)

1.3 125 g = 0,125 kg ✓ (M - convert to kg)

∴ cost = $0,125 \times R10,99$ ✓ (M - x by R10,99)

= 1,37375

= **R1,37** ✓ (A) (3)

1.4 $6:50 = 51:y$ ✓ (M) OR $6 \times 8,5 = 51$ ✓ (M) - \times by 8,5

∴ $50 \times 8,5 = \mathbf{R425}$ ✓ (M)- \times by 50 ✓ (A)

∴ $\frac{6}{50} = \frac{51}{y}$

∴ $6y = (51)(50)$ ✓ (M) (3)

$y = \frac{2550}{6}$

$y = R425$ ✓ (A)

1.5 PROFIT:

$R425,00 \div 2 = \mathbf{R 212,50}$ ✓ (M - \div by 2) ✓ (A) (2)

OR Profit = 50% of R425 = **R212,50** ✓ (M) ✓ (A)

OR Profit = $(R425 \times 150\%) - R425 = R637,50 - R425 = \mathbf{R212,50}$

[16]

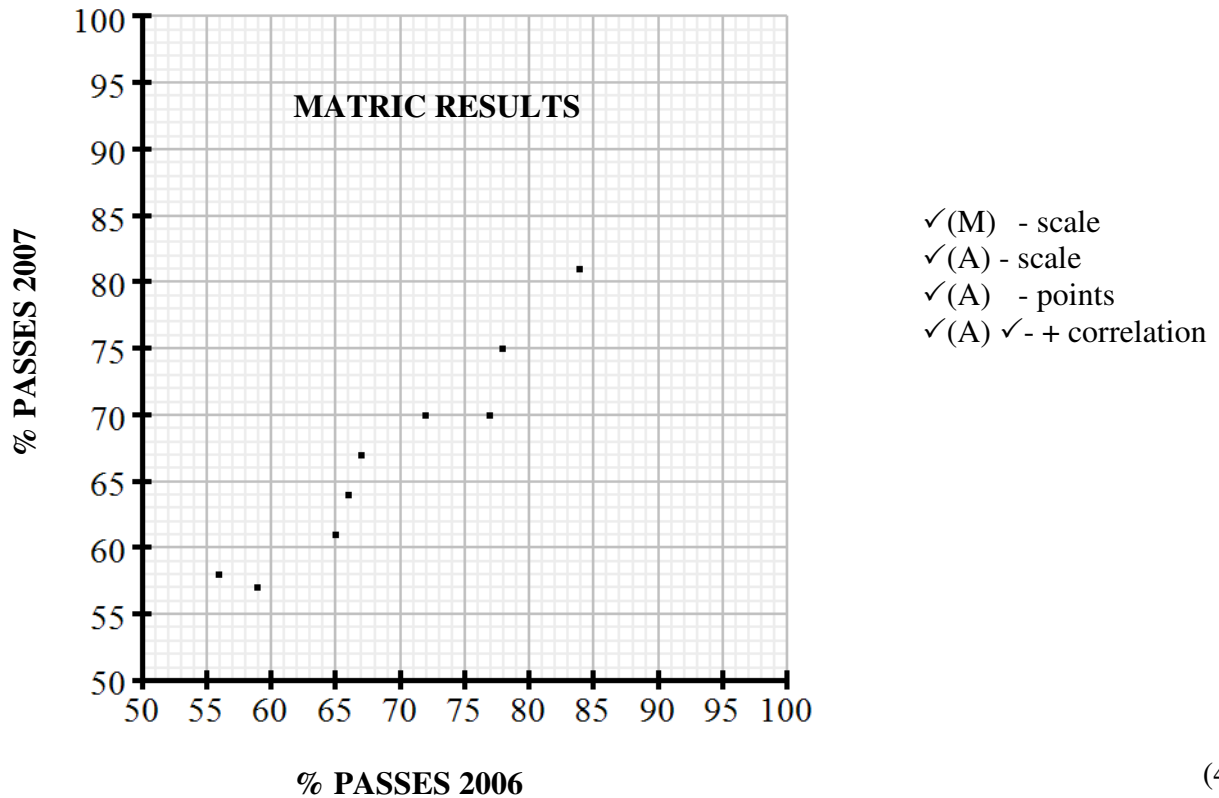
2.7	2.7.1	$4\,598 \div 50 = 91,96$ weeks	(divide by 50)	✓(M)	
		= 92 weeks	(to nearest week)	✓(AC)	(2)
	2.7.2	$92 \div 5 = 18,4$ times each	(divide by 5, use answer in 2.71)	✓(M)	
		= 19 times each	(accept 19)	✓(AC)	(2)
2.8	Date; where and when they will be sold			✓(A)✓(A)	(2)
	Price; how to place orders (with whom)			✓(A)✓(A)	(2)
	Reason; picture of cakes and TV			✓(A)✓(A)	(2)
	Easy to read/ understand/ good effort			✓(A)✓(A)	(2)

[33]

1.5 (Scattergraph)

% rounded to the nearest whole number

Provinces	1	2	3	4	5	6	7	8	9
% passes in 2006	59	72	78	66	56	65	67	77	84
% passes in 2007	57	70	75	64	58	61	67	70	81



(4)

1.6 There is a strong positive correlation between the 2006 % passes and the 2007 % passes

or

If the pass rate percentage was high in a particular province in 2006 it was as high in 2007

If the pass rate percentage was low in a particular province in 2006 it was as low in 2007

(1)

1.7 It seems that the % pass rate for the country and Mpumalanga has dropped from 2006 to 2007 (69,3% to 66,9%). This does not necessarily mean it will continue to drop in the coming years. It all depends on how many pupils write the exams and of those how many actually pass.

However, if more and more pupils start writing the exams the % passes might continue to drop if pupils are not well prepared.

(3)

[16]

ACTIVITY 2 SOCCER NEWS

2.1.1 Multiply W by 3 and then add D on to get the total points (T)

✓(A) multiply by 3
 ✓(A) add value of D (2)

2.1.2 **T = 3W + D**

✓(AC) with 2.1.1 (1)

2.2 **T = (3 × 9) + 2**
= 29 points

✓(M) consistent with 2.1.2
 ✓(A) (2)

2.3.1 If they win they will have 24 points as does Ajax Cape Town after 12 games so they will not necessarily be placed at the top. Ajax Cape Town scored more goals which could keep them at the top, unless Free State Stars score more than one goal in which case they could go to the top.

✓(A) ✓(A) ✓(A) (3)

2.3.2 0 – 0, 0 – 1, 0 – 2, 1 – 0, 1 – 1, 1 – 2, 2 – 0, 2 – 1, 2 – 2, 3 – 0, 3 – 1, 3 – 2
 3 marks for all possibilities correctly listed. Subtract a mark for each incorrect score or score left out.

Alternate answer: There were 4 possible scores for the Chiefs ✓(A).
 There were 3 possible scores for the Pirates ✓(A).
 Therefore, in total: 4 × 3 = 12 possible scores. ✓(M) (3)

2.4 R6,68 = 30 000 Zim dollars

✓(M) equating

R 10 000 = 30 000 x 10 000 ÷ 6,68 Zim Dollars ✓(M) R1 = 30 000/6,68

= 44 910 179,64 Zim Dollars

✓(A) × 10 000 (3)

accept 45 million

or

or

1 US Dollar = R6,68

Let x = No of Zim Dollars ✓(M) ratios

1 US Dollar = 30 000 Zim Dollars

$\frac{x}{30000} = \frac{10000}{6,68}$ (R1 = 30 000/6,68)

R1 = $\frac{30000}{6,68}$

✓(M)
 $\therefore x = \frac{30000 \times 10000}{6,68} \times 10\,000$

R10 000 = $\frac{30000}{6,68} \times 10000$

= 44 910 179,64 Zim Dollars ✓(A)

= 44 910 179,64 Zim Dollars

ACTIVITY 3 MISLEADING INFORMATION

3

Thando’s Graph – better	John’s graph
Good Number of viewers clear Easy to read	Good Individual sectors relative to whole
Bad No label on vertical axis Do not know what the graph is about – no key	Bad No angle sizes or viewer numbers All sectors look equal in size Do not know what the graph is about – no key

(any 2 facts for 2 marks each – must make sense) ✓(A) ✓(A) ✓(A) ✓(A)

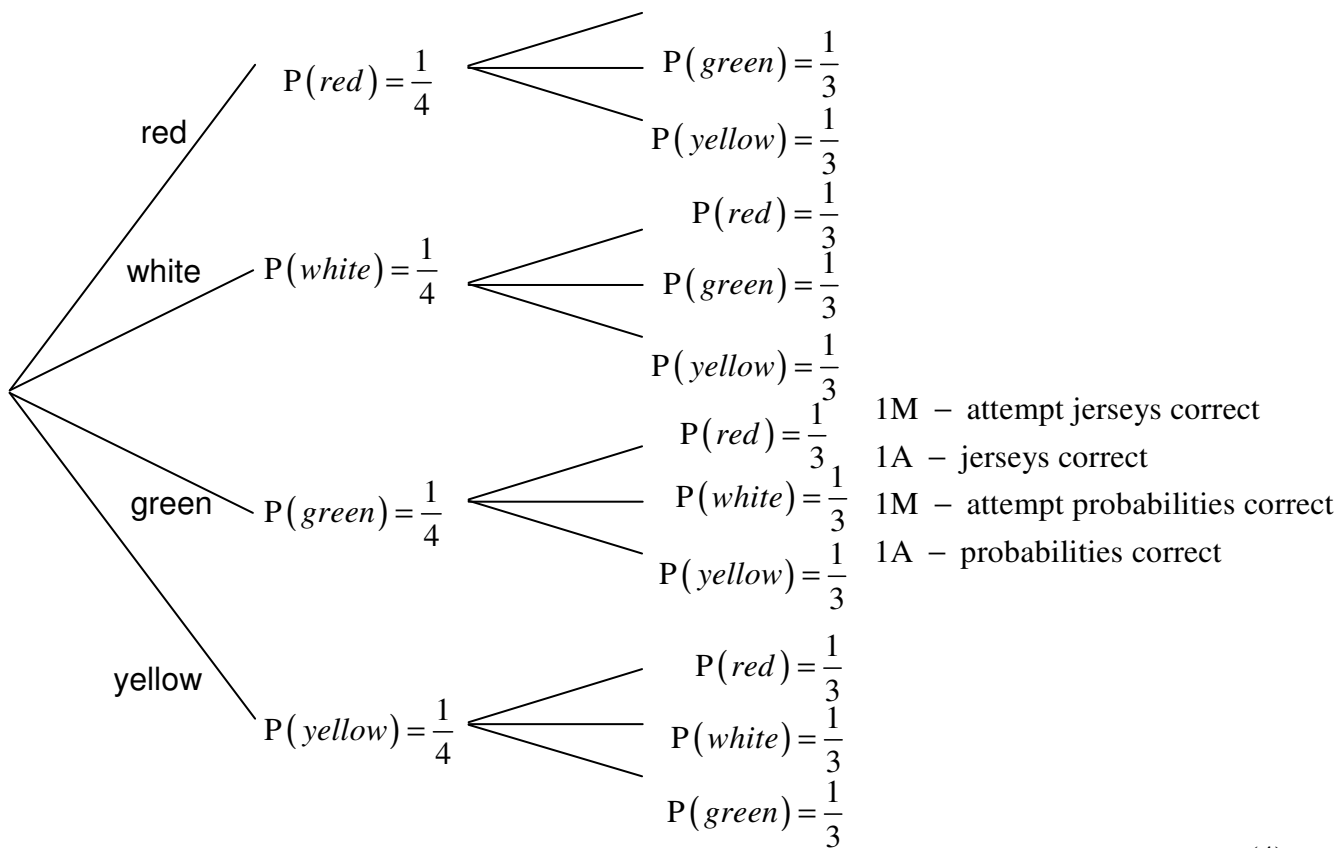
[4]

ACTIVITY 4 PROBABILITY

4.1

**First jersey
(not put back into bag)**

Second jersey



1M – attempt jerseys correct
 1A – jerseys correct
 1M – attempt probabilities correct
 1A – probabilities correct

(4)

4.2 $P(\text{white, green}) = \frac{1}{12}$ ✓✓

(2)

4.3 $P(\text{red and yellow}) = P(\text{red, yellow}) + P(\text{yellow, red})$

$$= \frac{1}{4} \times \frac{1}{3} + \frac{1}{4} \times \frac{1}{3} = \frac{1}{6}$$
 ✓

✓M – attempt to × and then +

(2)

4.4

$$\begin{aligned}
 P(\text{yellow, any colour}) &= \left(\frac{1}{4} \times \frac{1}{3}\right) + \left(\frac{1}{4} \times \frac{1}{3}\right) + \left(\frac{1}{4} \times \frac{1}{3}\right) + \left(\frac{1}{4} \times \frac{1}{3} + \frac{1}{4} \times \frac{1}{3} + \frac{1}{4} \times \frac{1}{3}\right) \\
 &= \left(\frac{1}{12}\right) + \left(\frac{1}{12}\right) + \left(\frac{1}{12}\right) + \left(\frac{1}{12} + \frac{1}{12} + \frac{1}{12}\right) \\
 &= \frac{6}{12} \\
 &= \frac{1}{2}
 \end{aligned}$$

✓M – attempt to × and then +

✓(A)

(2)

[10]

Total: 150 marks