



**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

GENERAL EDUCATION AND TRAINING CERTIFICATE

NQF LEVEL 1

ABET LEVEL 4 SITE-BASED ASSESSMENT

**LEARNING AREA : MATHEMATICS AND
MATHEMATICAL SCIENCES**

CODE : MMSC4

TOOL : INVESTIGATION

DURATION : 3 HOURS

MARKS : 50

This assessment tool consists of 5 pages.

INSTRUCTIONS AND INFORMATION FOR THE TEACHER.

1. This task assessing Unit Standard ID 7452
2. One week is allowed to complete the task, but if required, this can be extended
3. To mark Activity 1.1 – 1.3. 2 use the rubric.
4. A class discussion may be conducted before or during completion of the task.

ACTIVITY 1

1.1	Provider name	MTN's Contract Price Plans	MTN's Prepaid Price Plans
	Subscription fees	R399,00 × 24 months✓	None✓
	Free SMSs	25✓	None✓
	Free minutes	None✓	None✓
	SIM and connection fee	Free✓	Free✓
	Extras	250MB Internet Bundle pm x 24✓	Free Starter Pack. MTN Zone.✓

The total marks in this question are divided by 2.

(5)

- 1.2 1.2.1 **Contract:** is for 18 or 24 months. You pay a basic fee each month, usually for inclusive calls/texts/internet usage.✓ Any other relevant answer
Prepaid: You Pay up front for the length of the contract, say, the year, again for an agreed amount of calls/texts. OR
 The other option is obviously, 'pay as you go' You normally buy the phone, buy a SIM then pay a 'top-up' charge every time you need minutes/texts✓
 Any other relevant answer

(2)

- 1.2.2 **Peak times** - are times when, statistically, it is usually busier (at certain times of the day, week, month, year, etc.).✓ Any other relevant answer
Off-peak times - are times when there is hardly anything going on, or less busy than usual. OR Examples: calling rates - they vary, depending on when amounts of people use the landlines, etc., and may be cheaper at off-peak times and more expensive at peak times✓ Any other relevant answer

(2)

- 1.2.3 **SMS** Only allows you to send text.✓ Any other relevant answer
MMS allows you to send pictures, sounds, videos, text, or any combination of the four.✓ Any other relevant answer

(2)

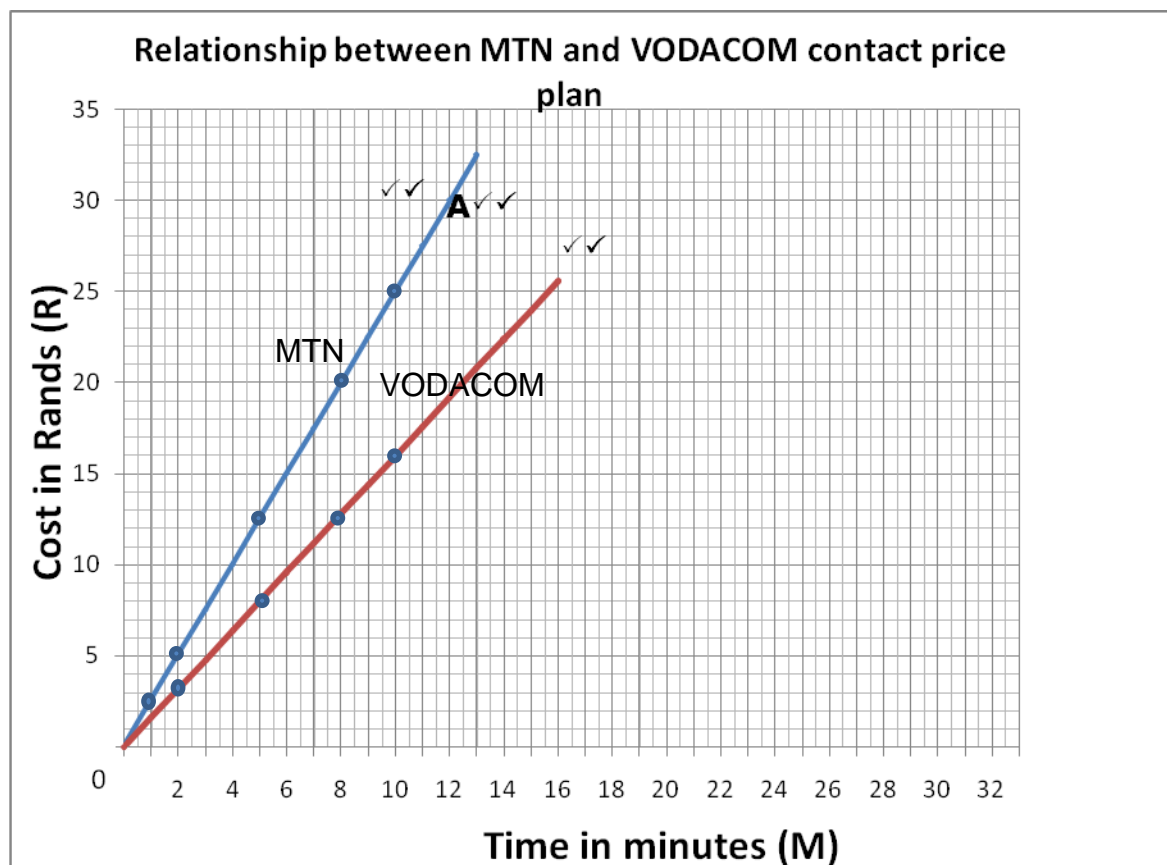
1.3.1

Time per minutes(Peak)	1	2	5	8	10	n
MTN Contract Price Plans(MTN to MTN)	R2,50	R5,00 ✓	R12,50 ✓	R20,00 ✓	R25,00 ✓	2.50n
VODACOM Contract Price Plans(Vodacom to Vodacom)	R1,60	R3,20 ✓	R8,00 ✓	R12,80 ✓	R16,00 ✓	1.60n

The total marks in this question are divided by 2.

(5)

1.3.2



2 Marks for the MTN Contract Price

2 Mark for the VODACOM Contract Price

(4)

1.3.3 Shown on the graph R30,00

(2)

1.3.4 (a) MTN

(2)

$$y = R129,00 + R2,50x \quad \checkmark \checkmark$$

(b) VODACOM

$$y = R129,00 + R1,60x \quad \checkmark \checkmark$$

(2)

1.3.5 For MTN to MTN

$$R129,00 + R2,50x = R250,00 \checkmark$$

$$R2,50x = R250,00 - R129,00$$

$$R2,50x = R121,00$$

$$\frac{R2,50x}{R2,50} = \frac{R121,00}{R2,50}$$

$$x = 48,4 \text{ min} \checkmark$$

(2)

1.3.6

OPTION 1 (MTN Contract Price Plan)

Calculation Per minute

$$y = R129,00 + R2,50x$$

$$y = R129,00 + R2,50 \times 1$$

$$y = R131,50 \checkmark$$

OPTION 2 (VODACOM Contract Price Plan)

Calculation Per minute

$$y = R129,00 + R1,60x$$

$$y = R129,00 + R1,60 \times 1$$

$$y = R130,60 \checkmark$$

Option 2 offers 120 free min's on weekends and
Option 2 is cheaper

(2)

ACTIVITY 2

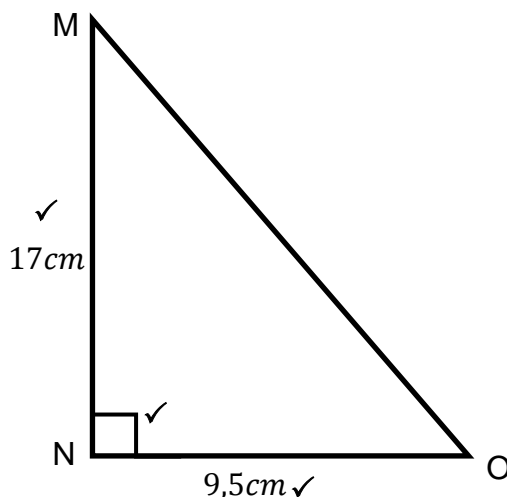
2.1 $13^2 = 169$

$$\text{and } 12^2 + 5^2 = 144 + 25 = 169 \checkmark$$

$$13^2 = 12^2 + 5^2 \checkmark$$

Therefore the triangle with sides, 5cm, 12cm and 13cm is a right – angled triangle ✓ (3)

2.2



1 mark for line MN

1 mark for line NO

1 mark for angle N

(3)

2.2.1 Size of Angle M = $29,2^\circ \checkmark$

Size of Angle N = 90°

Size of Angle O = $60,8^\circ \checkmark$

(2)

2.2.2 19cm or 19,5cm or 20cm

(1)

2.2.3 Use the theorem of Pythagoras to check if this is really a right-angled triangle:

$$RQ^2 = (9m)^2 = 81m^2$$

$$\begin{aligned}
 PQ^2 + PR^2 &= (6m)^2 + (8m)^2 \\
 &= 36m^2 + 64m^2 \\
 &= 100m^2 \\
 \therefore RQ^2 &\neq PQ^2 + PR^2 \checkmark
 \end{aligned}$$

This is not a right-angled triangle because the area of the square on the hypotenuse (RQ) is **not** equal to the sum of the areas of the squares on the other two sides. $\checkmark\checkmark$

(5)

2.3

$$\text{Width} = 750\text{cm} = 75\text{m} \checkmark$$

$$BD^2 = BC^2 + DC^2 \checkmark$$

$$BD^2 = (100\text{m})^2 + (75\text{m})^2 \checkmark$$

$$BD^2 = 10000\text{m}^2 + 5625\text{m}^2$$

$$BD^2 = 15625\text{m}^2 \checkmark$$

$$\sqrt[2]{BD^2} = \sqrt{15625\text{m}^2} \checkmark$$

$$BD = 125\text{m}$$

Therefore the diagonal of the soccer field is 125m \checkmark

(6)

[20]**TOTAL: 50**