



**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

TASK : INVESTIGATION

DURATION : 3 HOURS

MARKS : 50

This assessment task consists of 5 pages.

INSTRUCTIONS AND INFORMATION

1. This investigation should be done in groups. Each group member should however write his/her own work.
2. For preparation, learners should have the following: a ruler, pencil and protractor to draw.

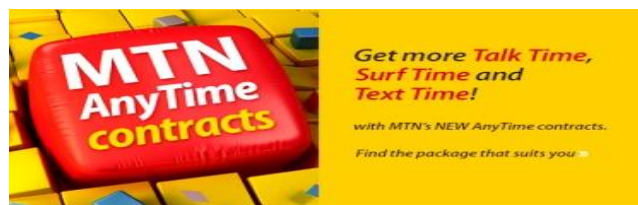
ACTIVITY 1

CHOOSE THE BEST "VALUE FOR MONEY"

Cell Phones

To get a cell phone working, you need the instrument (the cell phone itself with a battery); a simcard and a connection (which gives a number to your cell phone) and an airtime account. Apart from these costs, each call is charged per unit of time. The charges are quoted per minute in the tariff.

Study the advertisement below and answer the questions that follow.



[Enquire Now](#)

BlackBerryCurve 9320
Smartphone



BlackBerry Z10

Features:

- TFT, 2.44" Display.
- Touch-Sensitive Optical Trackpad.
- BlackBerry OS 7.1.
- SMS, MMS, Email, Push Email, IM.
- 3.15 MP Camera with LED flash.

Freebies:

- Free Starter Pack.

MTN Zone.

Phone Features:

- Dual-core 1.5GHz processor
- Built-in sharing to social networks
- BlackBerry® Peek
- 8MP camera with Time Shift mode
- Effortless typing with BlackBerry®

Keyboard

PRE-PAID

Total cost

R2399

FREE SIM & CONNECTION

Subscription fee

R399 PM

X24

Including R200 airtime per month incl. VAT

25 x SMS

INCLUDES 250MB

Internet Bundle pm x

24. Also available in white

FREE SIM &

CONNECTION

FREE DELIVERY

1.1 Copy and complete the following table:

Provider name	MTN's Contract Price Plan	MTN's Prepaid Price Plan
Subscription fees		
Free SMSs		
Free minutes		
SIM and connection fee		
Extras		

(5)

1.2 What is the difference between:

1.2.1 Contract and prepaid (2)

1.2.2 Peak and off-peak times (2)

1.2.3 SMS and MMS (2)

1.3 Compare the Price Plan of the two cell phone providers, namely MTN and Vodacom.

MTN Tariffs
MTN'S Contract Price Plans

Price Plan	Anytime Off-Peak
Monthly Subscription	R129,00 per month
Connection Fee	R95,19
Inclusive Airtime Minutes per month	Up to 120 Off- Peak weekdays & weekend
Peak Call Rate Local & National	R2,50
MTN to other Mobile	R3,00
Off-Peak Calls	R0,95

VODACOM Tariffs
VODACOM'S Contract Price Plans

Tariffs:	Weekender Plus
Connection Fee and Sim Card(once-off)	R190,00
Monthly Subs	R129,00
Peak Rate (07:00 – 10:00)	R2,15 ●
	R1,60 ☼
Off-Peak (20:00 – 07:00)	R0,95 ☼ ●
Special (Sunday & Public Holiday)	R0,95 ☼ ●
Free Minutes	- 120 free min's on weekends - Voicemail

☼ - Vodacom to Vodacom

● - Vodacom to other

1.3.1 Copy and complete the following table:

Time per minutes (Peak)	1	2	5	8	10	n
MTN Contract Price Plans (MTN to MTN)	R2,50				
VODACOM Contract Price Plans (Vodacom to Vodacom)	R1,60				

(5)

1.3.2 On the same system of axes, provided in ANNEXURE A. Draw a line graph which will help you to compare the costs of the two contracts Price Plan.

(4)

1.3.3 On your graph, show (with the letter A) where you would read the cost if you made a total of 12minutes' worth of peak time calls on the MTN contract Price Plan phone.

(2)

1.3.4 (a) Derive a formula which you can use to calculate the monthly account for any number of one minute calls during peak time for MTN Contract Price Plan.

(2)

(b) Derive a formula which you can use to calculate the monthly account for any number of one minute calls during peak time for VODACOM Contract Price Plan.

(2)

1.3.5 For the MTN contract plan, show how you would calculate the total duration of peak time calls for an account of R250, 00 per month if calls were only made to other MTN users ONLY.

(2)

1.3.6 Discuss which option is "VALUE FOR MONEY" (cheaper price).

(2)

[30]**ACTIVITY 2**

- Learners need to have a pencil, ruler and protector**

The Greek mathematician, Pythagoras (500 BC), generalised the knowledge about right- angled triangle by showing that:

For any right-angled triangle, the area of the square on the hypotenuse is equal to the sum of the areas of the squares on the other two sides. This is known as theorem of Pythagoras.

2.1 The three sides of a triangle are 5 cm, 12 cm and 13 cm long. Find out whether it is a right-angled triangle.

(3)

2.2 Draw the triangle MNO with MN= 17 cm, NO = 9, 5 cm and $\hat{N} = 90^\circ$

(3)

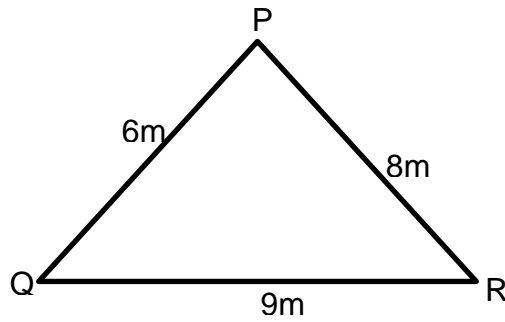
2.2.1 Measure the angles of the triangle and write down their sizes.

(2)

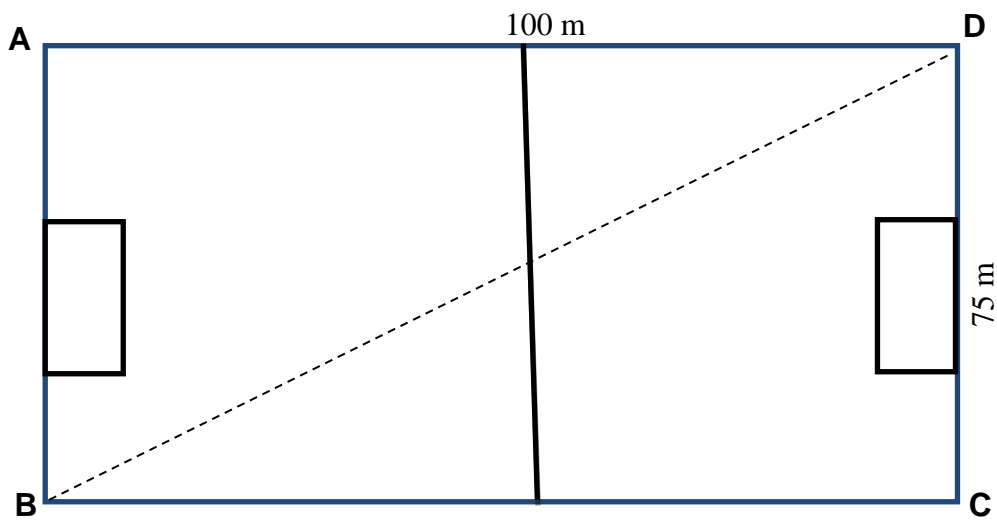
2.2.2 Measure the length of MO.

(1)

- 2.2.3 Determine whether $\triangle PQR$ is right angled or not (Hint: Use the theorem of Pythagoras. (5)



- 2.3 A soccer field is 100 m long and 75m wide. How long is the diagonal of the field?



(6)
[20]

TOTAL : 50

NAME: _____