OUR LADY OF THE SACRED HEART COLLEGE
KENSINGTON

REGNET CHRISTUS
OLSH COLLEGE

STUDENT – NAME .....

MATHEMATICS TEACHER .: .....

2012

Year 8
Mathematics – Assessment Task 2

Time allowed: **45 minutes**

Directions to Candidates

- Show all working on the paper
- The questions are not of equal value, so make sure you spend the right amount of time on each question
- Read each question carefully
- Check your answers at the end if you have time
- *Calculators may be used*

- Good luck

ASSESSED OUTCOME		Marks	Total
DS4.1 DS4.2	**Constructs, reads, and interprets graphs, tables, charts and statistical information** **Data Analysis and evaluation**		/26
MS4.1	**Uses Pythagoras Theorem in a variety of context**		/18
		Total:	/44

1. Classify the following data according to whether they are Categorical, Discrete or Continuous. ***(circle the correct response)***

(a) number of planets in the solar system. _____

(b) types of animals at Taronga Zoo. _____

(c) distance between the Earth and the Sun. _____

The Angle Line

Station		a.m.	a.m.	a.m.	a.m.
Obtuseland		7.45	8.05	8.25	8.45
Vertical Intersection		7.49	8.09	8.29	8.49
Alternate Junction	arr.	7.53	8.13	8.33	8.53
	dep.	7.54	8.14	8.34	8.54
Reflex Corner		7.56	8.16	8.36	8.56
Transversal Valley		8.02	8.22	8.42	9.02
Vertex Peak		8.07	8.27	8.47	9.07
Revolution Bend		8.10	8.30	8.50	9.10
Mathsville	arr.	8.15	8.35	8.55	9.15
	dep.	8.16	8.36	8.56	9.16
Adjacent Hill		8.18	8.38	8.58	9.18

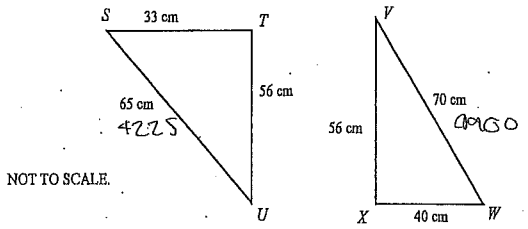
2. Are the following statements true or false for the table above? ***(circle the correct response)***

i. The train leaving Obtuseland at 8:05am arrives at Adjacent Hill at 8:58am (True/False)

ii. The time it takes to get from Reflex Corner to Transversal Valley is 6 minutes. (True/False)

iii. If you caught the 8:49am train from Vertical Intersection you will arrive at Revolution Bend by a quarter past 9. (True/False)

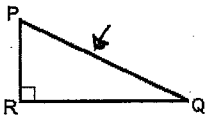
3. Which triangle is right angled?
Choose the correct answer



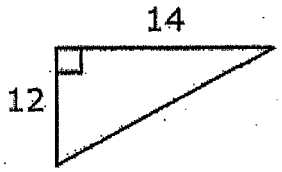
☐ Triangle *STU* only. ☐ Triangle *VWX* only

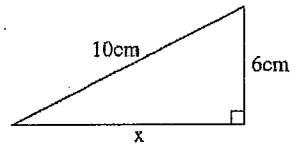
☐ Both Triangles. ☐ Neither Triangle.

4. Draw an arrow pointing to which side the *hypotenuse* is in the following right-angled triangle?



5. Find the value of x in the triangle below (answer to the nearest whole number)





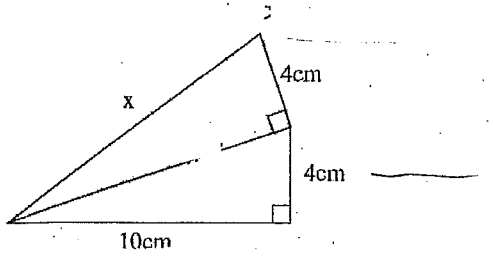
6) Find the value of x.

.....

.....

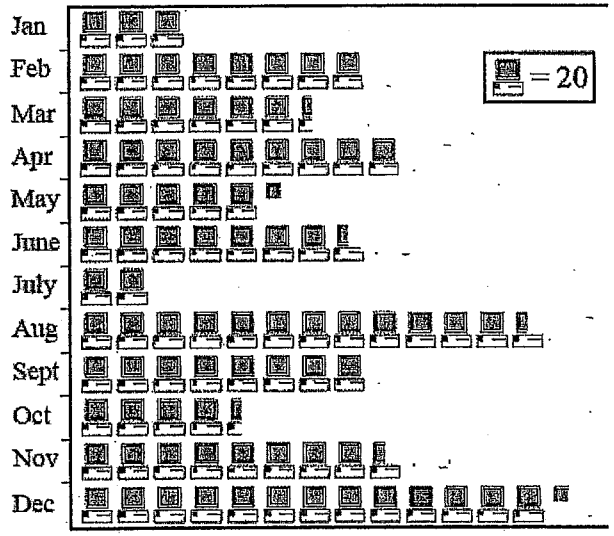
.....

7) Work out the value of x



8. The Picture graph below outlines the Computer Sales for a small business in 2002.

Graph 1 : Computer Sales in 2002



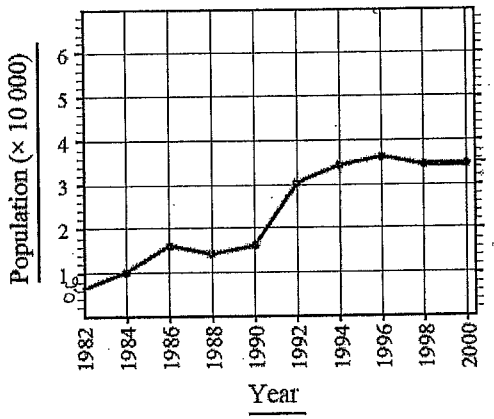
(a) Name the months with the same sales figures and give the number of sales

(b) Give the lowest sales month and sales

(c) Give a possible explanation why December would have the most number of sales:

(d) Calculate the Average amount of computer sales during the winter period.

9) The Line Graph below shows the population of Daceyville over the period 1982 – 2000.



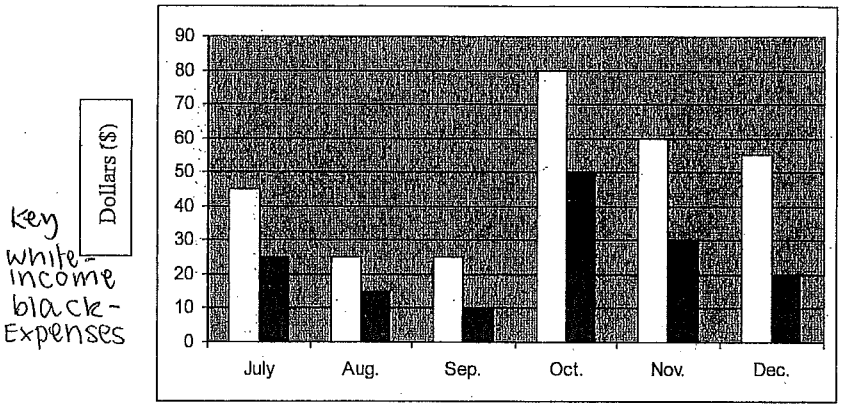
(a) Give the population for the year 1992

(b) Give the year that may have had the population as 36000

(c) By how much has the population changed over the entire time period?

(d) In which two-year period did the greatest increase in population occur?

Mark's Income and Expenses balance (July – December)



key
white - income
black - Expenses

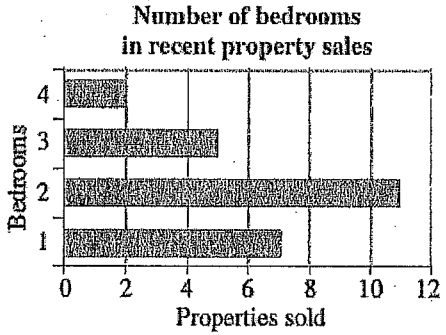
10) The column graph shows Mark's Income and Expenses balance

a) In which month was the Expenses balance least?

b) What was the Income balance in August?

c) In which month was the Expenses balance $20?

11) Mr Bieber, a famous Real Estate agent, recorded the number of bedrooms in each property he sold over a period of one month.



a) What type of graph is this?

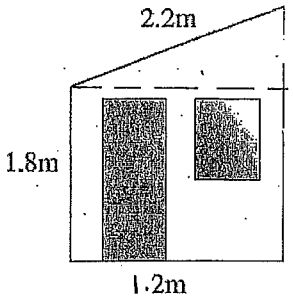
b) How many properties had 3 bedrooms?

c) What was the maximum number of bedrooms in any of these properties?

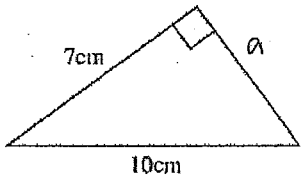
d) What percentage of the properties had 4 bedrooms?

12)

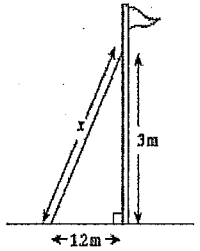
How tall is this shed at its tallest point?



13) Calculate the Perimeter of this Triangle



14) A support for a flagpole is attached at a height of 3m and is fixed to the ground at a distance of 1.2 m from the base.



Not to scale

Calculate the length of the support (marked x on the diagram).

SOLUTIONS

1. Classify the following data according to whether they are Categorical, Discrete or Continuous. *(circle the correct response)*

(a) number of planets in the solar system. Discrete ✓

(b) types of animals at Taronga Zoo. Categorical ✓

(c) distance between the Earth and the Sun. Continuous ✓ (3)

The Angle Line ✓

Station		a.m.	a.m.	a.m.	a.m.
Obtuseland		7.45	8.05	8.25	8.45
Vertical Intersection		7.49	8.09	8.29	8.49
Alternate Junction	arr.	7.53	8.13	8.33	8.53
	dep.	7.54	8.14	8.34	8.54
Reflex Corner		7.56	8.16	8.36	8.56
Transversal Valley		8.02	8.22	8.42	9.02
Vertex Peak		8.07	8.27	8.47	9.07
Revolution Bend		8.10	8.30	8.50	9.10
Mathsville	arr.	8.15	8.35	8.55	9.15
	dep.	8.16	8.36	8.56	9.16
Adjacent Hill		8.18	8.38	8.58	9.18

2. Are the following statements true or false for the table above? *(circle the correct response)*

i. The train leaving Obtuseland at 8:05am arrives at Adjacent Hill at 8:58am (True / (False))

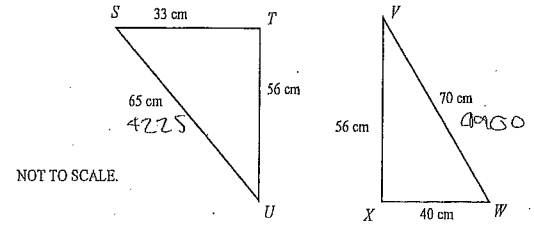
ii. The time it takes to get from Reflex Corner to Transversal Valley is 6 minutes. ((True) / False)

iii. If you caught the 8:49am train from Vertical Intersection you will arrive at Revolution Bend by a quarter past 9. ((True) / False) ✓

(3)

(6)

3. Which triangle is right angled?
Choose the correct answer

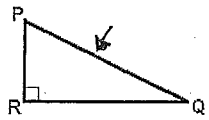


☑ Triangle *STU* only. ☐ Triangle *VWX* only

☐ Both Triangles. ☐ Neither Triangle.

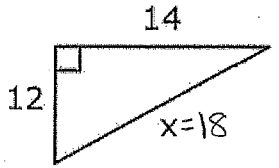
✓ (1)

4. Draw an arrow pointing to which side the *hypotenuse* is in the following right-angled triangle?



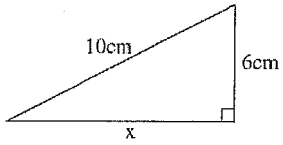
✓ (1)

5. Find the value of x in the triangle below (answer to the nearest whole number)



$x^2 = a^2 + b^2$
$x^2 = 14^2 + 12^2$
$x^2 = 196 + 144 = 340$
$x = \sqrt{340}$
$x = 18.4390889$
$x = 18$ (nearest whole no.)

✓✓✓ (3)



6) Find the value of x.

$x^2 = a^2 - b^2$ $x = \sqrt{64}$

$x^2 = 10^2 - 6^2$ $x = 8cm$

$x^2 = 100 - 36 = 64$

✓✓ (2)

(5)

7) Work out the value of x

$x^2 = 10.8^2 + 4^2$

$x^2 = 116.64 + 16 = 132.64$

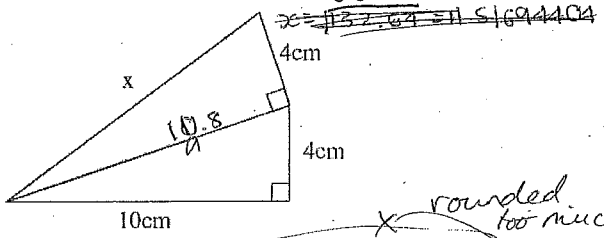
$x = \sqrt{132.64} = 11.51694404$

$10.77032961 + 16$

$= 116 + 16 = 132$

$\sqrt{132} = 11.48912529$

$x = 11.5\text{cm}$



$a^2 = b^2 + c^2$ $a = 10.77032961$ $x^2 = a^2 + b^2$ $x = 12\text{cm}$

$a^2 = 10^2 + 4^2$ $a = 11\text{cm}$ $x^2 = 11^2 + 4^2$ (nearest whole no.)

$a^2 = 100 + 16 = 116$ (nearest whole no.) $x^2 = 121 + 16 = 137$

$a = \sqrt{116}$ ✓ $x = \sqrt{137}$

$x = 11.70469991$

✗ rounded too much.

8. The Picture graph below outlines the Computer Sales for a small business in 2002.

Graph 1 : Computer Sales in 2002

Jan	60
Feb	160
Mar	130
Apr	180
May	105
June	155
July	40
Aug	255
Sept	160
Oct	90
Nov	175
Dec	265

= 20

(a) Name the months with the same sales figures and give the number of sales

February and September ✓ sold 160 ✓ computers.

(b) Give the lowest sales month and sales

July ✓ sold only 40 ✓ computers.

(c) Give a possible explanation why December would have the most number of sales:

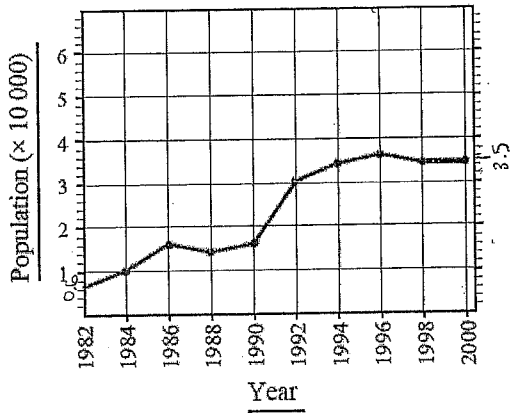
They may be cheaper as it is close to Christmas ✓ and shops are trying to give discounts.

(d) Calculate the Average amount of computer sales during the winter period.

$40 + 155 + 255 = 450$ ✓ Average amount of sales

$450 \div 3 = 150$ ✓ in Winter was 150.

9) The Line Graph below shows the population of Daceyville over the period 1982 – 2000.



(a) Give the population for the year 1992 30,000 ✓

(b) Give the year that may have had the population as 36000 1996 ✓

(c) By how much has the population changed over the entire time period? 30,000 − 1996 = 28,004

working:

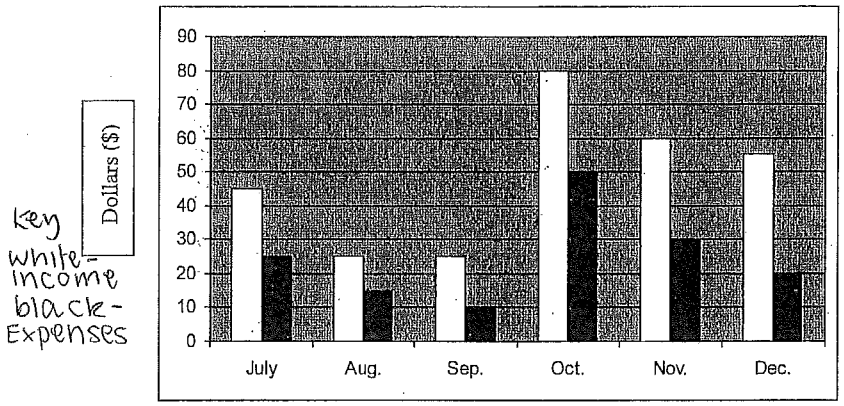
The population has increased by 28,000 people over a period of 18 years. ✗

(d) In which two-year period did the greatest increase in population occur?

In occured between 1990 and 1992. ✓

(6)

Mark's Income and Expenses balance (July – December)



key white- income black- Expenses

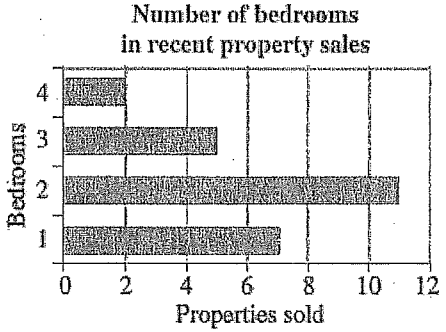
10) The column graph shows Mark's Income and Expenses balance

a) In which month was the Expenses balance least? September

b) What was the Income balance in August? $25

c) In which month was the Expenses balance $20? December

11) Mr Bieber, a famous Real Estate agent, recorded the number of bedrooms in each property he sold over a period of one month.



a) What type of graph is this? a bar graph

b) How many properties had 3 bedrooms? 5

c) What was the maximum number of bedrooms in any of these properties?
4 was the maximum number of bedrooms.

d) What percentage of the properties had 4 bedrooms? 8% of properties had 4 bedrooms.

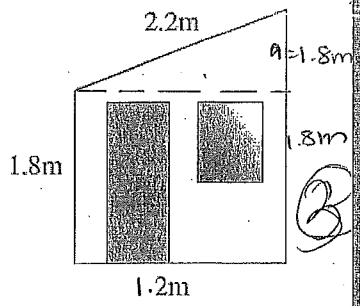
2
25×100=8

12)

How tall is this shed at its tallest point?

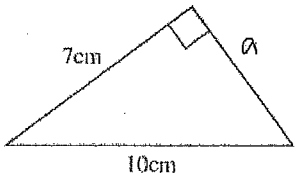
$a^2 = b^2 - c^2$
$a^2 = 2.2^2 - 1.2^2$
$a^2 = 4.84 - 1.44 = 3.4$
$a = \sqrt{3.4}$
$a = 1.843908891$
$a = 1.8$ (1 dp)

1.8 + 1.8 = 3.6



The shed is 3.6m at its tallest point.

13) Calculate the Perimeter of this Triangle

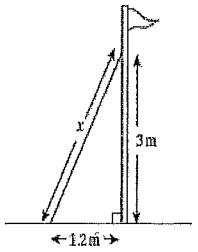


$a^2 = b^2 - c^2$
$a^2 = 10^2 - 7^2$
$a^2 = 100 - 49 = 51$
$a = \sqrt{51}$

$a = 7.141428429$
$a = 7.1$ (1 dp) cm

Pythagoras

14) A support for a flagpole is attached at a height of 3m and is fixed to the ground at a distance of 1.2 m from the base.



Not to scale

Calculate the length of the support (marked x on the diagram).

$x^2 = a^2 + b^2$
$x^2 = 1.2^2 + 3^2$
$x^2 = 1.44 + 9 = 10.44$

$x = \sqrt{10.44}$
$x = 3.231098884$
$x = 3.2$ m (1 dp)