# TAURANGA GIRLS COLLEGE YEAR 10 HOMEWORK SHEET 

## Series C Sheet 2

TGC Values: Respect, Participation, Pride
$\qquad$

Due Date: $\qquad$

## KEY SKILLS:

1. In the number 765.41 what digit is in the tenths column? $\qquad$
2. Round 0.679 to the nearest hundredth
3. Write twenty two hundredths as a decimal
4. $5.6 \mathrm{~m}=$ $\qquad$ mm
5. How many square metres are there in one hectare? $\qquad$
6. Complete this equivalent fraction

$$
\frac{3}{4}=\frac{}{20}
$$

8. What is the perimeter of this rectangle?
$2 m$

9. What is the area of the rectangle shown above?
10. It was recorded how long some year 11 students took to run 50 metres. The times were recorded to the nearest second.

$$
\text { Time to run } 50 \mathrm{~m}
$$


a) How many students ran? $\qquad$
b) What was the median time? ? $\qquad$
c) What was the upper quartile time? $\qquad$
d) What is the shape of the times to run 50 metres? $\qquad$

## REVIEW and CURRENT WORK (CL 4-5): Number and Algebra

 (You can use a calculator)A. Review

1. $14^{2}=$
2. $\frac{3}{4}$ of $\$ 640=$
3. $\sqrt{578}=$
4. 36 out of 80 people in a survey had been to the South Island. What percentage is this?
b)




Complete the table:

| C, Circles | 1 | 2 | 3 | 4 |
| :--- | :--- | :--- | :--- | :--- |
| D, Dots | 0 | 2 |  |  |

Write the rule linking $D$ and $C$ D = $\qquad$
5. $a=6$ and $d=-4$, find the value of:
a) $3 a+4 d=$
b) $3 \mathrm{ad}=$

## C. Algebra Simplifying

c) $\frac{a}{2}=$ Adding and Subtracting:
a) $6 a+2 a=$
d) $\mathrm{a}^{2}=$
b) $3 a+7 a+a=$
6. If $v=u+a t$ find $v$ if $u=5, a=8$ and $t=4$
c) $12 \mathrm{a}-10 \mathrm{a}=$
$\mathrm{v}=$
d) $3 a-5 a=$
e) $-2 \mathrm{a}-3 \mathrm{a}=$
B. Patterns and Rules
f) $7 a-5 a-2 a-3 a=$
a) Find the rule connecting $x$ and y for each table:
g) $6 \mathrm{a}+3 \mathrm{c}+2 \mathrm{a}+7 \mathrm{c}=$
h) $5 a+7 c+a+c=$

| $x$ | $y$ |  | $y$ |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 5 |  | $y$ |  |
| 2 | 8 |  | 2 | 2 |
| 3 | 11 |  | 3 | 12 |
| 4 | 14 |  | 4 | 17 |

$y=\quad y=$
Current Work CL4-5: $\qquad$ / 25

## REVIEW and CURRENT WORK (CL 5-6): Number and Algebra

 (You can use a calculator)
## A Review...

## Calculate

1. $\sqrt{3490}=$
2. What is the full cost of an item marked \$398 + GST?
3. In has rained on 13 days in the last three weeks. What percentage of days is this?
4. Complete this table:

| Ordinary form | Standard form |
| :--- | :--- |
| 0.021 |  |
|  | $2.5 \times 10^{4}$ |

5. $M=\frac{2 c-a}{5 d}$

Find $M$ if $\mathrm{c}=5, \mathrm{a}=-4$ and $\mathrm{d}=2$

## B. Patterns and Rules

1. Find the rule connecting $x$ and $y$ for each table:

| x | y | x | y |
| :---: | :---: | :---: | :---: |
| 1 | 5 | 1 | -21 |
| 2 | 2 | 2 | -17 |
| 3 | -1 | 3 | -13 |
| 4 | -4 | 4 | -9 |

2. 




a) Write a rule connecting the number of matchsticks $M$ and the number of pentagons $P$ using the letters $M$ and $P$.
b) How many matchsticks are needed for 50 pentagons?

## C. Algebra Simplifying

Adding and Subtracting:
a) $6 \mathrm{a}+12 \mathrm{a}-2 \mathrm{c}-3 \mathrm{c}=$
b) $3 a-7 c-5 a-9 c=$
c) $7 \mathrm{a}-3 \mathrm{c}-10 \mathrm{a}-\mathrm{c}=$
d) $a^{2}+a^{2}=$
e) $3 a^{2}+4 a^{2}=$
f) $5 a^{2}+2 a^{2}+7 a^{3}+4 a^{3}=$

Multiplying
(a) $6 g \mathrm{x}^{-} 2 \mathrm{~h}=$
(b) $2 a \times 5 a x-3=$
(c) $5 \mathrm{a} \times 3 \mathrm{a} \times 2 \mathrm{a}=$
(d) $3 \mathrm{a} \times 2 \mathrm{c} \times 4 \mathrm{a}=$
(e) $(3 a)^{2}=$

Current Work CL5-6: $\qquad$ /21

## APPLICATIONS and TASKS

For each of these tasks you must show your working. Set out your solution in a clear and ordered manner. Read the question carefully.

Task One (2 marks)
The distance in kilometres $d$ to the horizon from any point which is $h$ metres above sea level is
approximately given by the rule: $d=\sqrt{13 h}$
If you are standing at the top of Mauao, which is 232 m high, should you be able to see Whakaari (White Island), 89km away? Why?

Task Two (4 marks)
A cylinder and sphere are shown below:


Their surface areas are given by these formulae:
Sphere: $A=4 \pi r^{2}$
Cylinder: $A=2 \pi r(h+r)$

Calculate which shape has the greatest area if the value of $h=12 \mathrm{~cm}$ and $r=10 \mathrm{~cm}$.

Give the percentage increase in surface from the smaller area to the bigger area.

Applications Total: $\qquad$ /4

Overall Results:

| KS | CL4-5 | CL5-6 | APP | Parent Signature: |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |
| 13 | 25 | 21 | 4 |  |

