M8 =10 days to go!

11 Evaluate each of the following.

(a) $8^{\frac{2}{3}}$

$(\sqrt[3]{8})^2$

2^2

Answer 4 [1]

(b) $9^{0.5} + 27^{\frac{1}{3}} \div 36^{-0.5}$

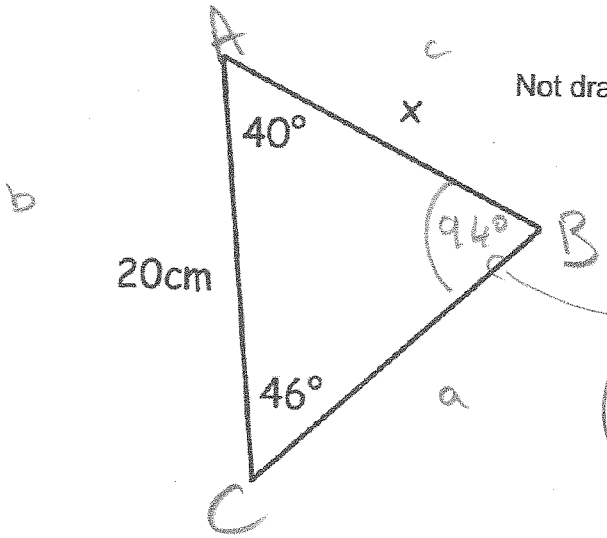
$\sqrt{9} + \sqrt[3]{27} \div \frac{1}{\sqrt{36}}$

$3 + (3 \div \frac{1}{6})$

$3 + (3 \times \frac{6}{1}) = 3 + 18 = 21$

Answer 21 [3]

6.



Not drawn is scale.

Label using a, b, c as on formula sheet

first find this angle and then use Sine Rule as we only know one side

Find the size of x.

$180° - 40° - 46° = 94°$

$\frac{c}{\sin C} = \frac{b}{\sin B}$

$c = \frac{b}{\sin B} \times \sin C$ so $c = \frac{20}{\sin 94°} \times \sin 46°$

14.42 cm

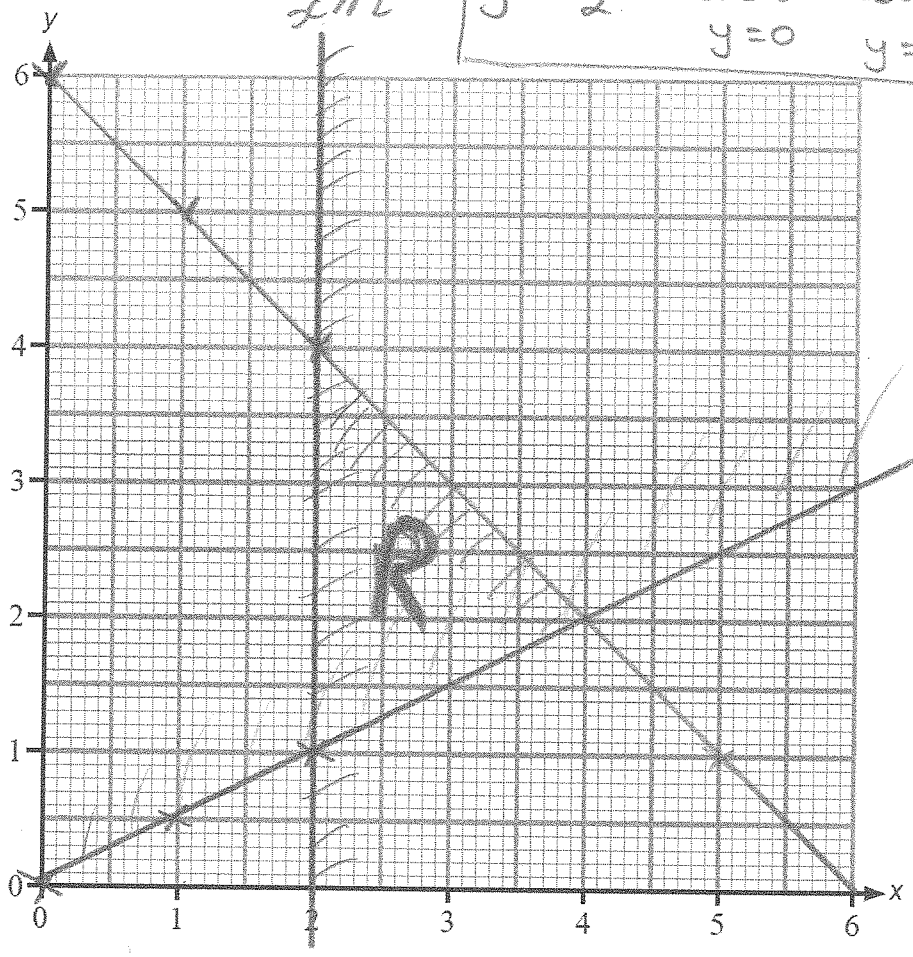
(3)

8 **(a)** On the grid below, show by shading **and the letter R**, the region represented by the inequalities.

$x + y \leq 6$
$x \geq 2$ ← vertical @ 2
$2y \geq x$ ← rearrange $x \leq 2$

* Find points on each line and plot the line *

$y \geq \frac{x}{2}$ | $x=0$, $y=0$ | $x=1$, $y=\frac{1}{2}$ | $x=2$, $y=1$



[3]

(b) Find the maximum value of $2x + 3y$ in the region R, where x and y are integers.

Answer (2, 4) [2]

* (4, 2)
$2x + 3y$
$8 + 6 = 14$

* (2, 4)
$2x + 3y$
$4 + 12 = 16$

For $2y \geq x$
Below line
Try (5, 1)
Is $2 \geq 5$ no
So region is above

$x + y \leq 6$
Plot $x + y = 6$
$x=0$ $x=1$ $x=2$
$y=6$ $y=5$ $y=4$
Below line (1, 3)
$1 + 3 = 4$
$x + y \leq 6$ ✓

Test a value in R
(3, 2) $x + y \leq 6$
$3 + 2 \leq 6$ ✓

$x \geq 2$
$x = 3$ ✓
$2y \geq x$
$4 \geq 3$ ✓