

HSC General Mathematics

Assignment 3

1. $589\,000\,000\,000\text{ km}$
 $= 5.89 \times 10^8$ (2)

2. $\frac{(12.34)^2}{(15.68 - 13.87)}$
 $= 84.13$ (1)

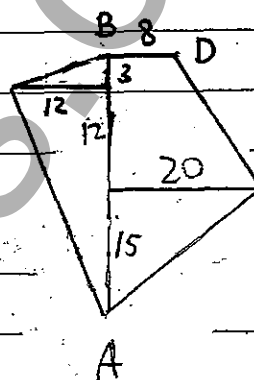
3. $\frac{x-3}{4} = \frac{x-2}{5}$ (1)
 $5(x-3) = 4(x-2)$ (1)
 $5x - 15 = 4x - 8$
 $-4x \quad -4x$ (1)
 $x - 15 = -8$
 $+15 \quad +15$
 $x = 7$ (1)

4. $100\% = \text{Some amount}$
 $125\% = \$26\,000$ (1)
 $\div 125 \quad \div 125$
 $1\% = \$208$
 $\times 100 \quad \times 100$
 $100\% = \$20\,800$ (1)

Original Price = \$20 800

5. $P(\text{not red or green}) = \frac{3}{15}$
 $= \frac{1}{5}$ (1)

6
A.



B. Area $\Delta ABC = \frac{b \times h}{2}$
 $= \frac{30 \times 12}{2}$
 $= 180\text{ m}^2$

Area trapezium = $\frac{1}{2}h(a+b)$
 $= \frac{1}{2} \times 15 \times (8+20)$
 $= 210\text{ m}^2$

Area $\Delta = \frac{b \times h}{2}$
 $= \frac{15 \times 20}{2}$
 $= 150\text{ m}^2$ (3)

Total area = 540 m^2 6

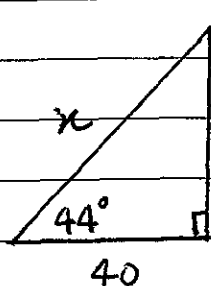
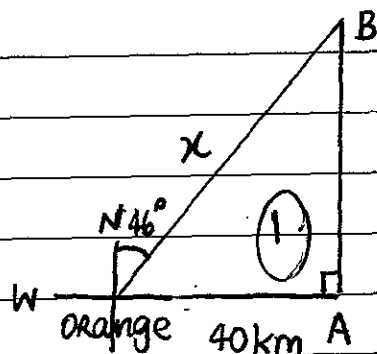
c. length of AE

$$AE^2 = 15^2 + 20^2$$

$$= 625$$

$$AE = 25 \text{ m}$$

7.



$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\cos 44^\circ = \frac{40}{x}$$

$$x \times \cos 44^\circ = 40$$

$$x = \frac{40}{\cos 44}$$

$$x = 55.6 \text{ km (1 d.p.)}$$

$$\text{if } 46^\circ \rightarrow 57.58 \text{ km}$$

8 A

(1)

5

2282.40

9A See next page

B Trying to read off my graph
(which doesn't go far enough in
both directions)

I think he needs to make a
sale of \$575,000 (1)

10i \$11.61 (1)

$$\text{ii } \$900 \div \$11.61 = 77.51937984$$

$$\times 1000$$

$$= \$77519.38 (1)$$

$$\text{iii } \$50,000 \div \$1000 = 50$$

$$50 \times 13.22 = \$661$$

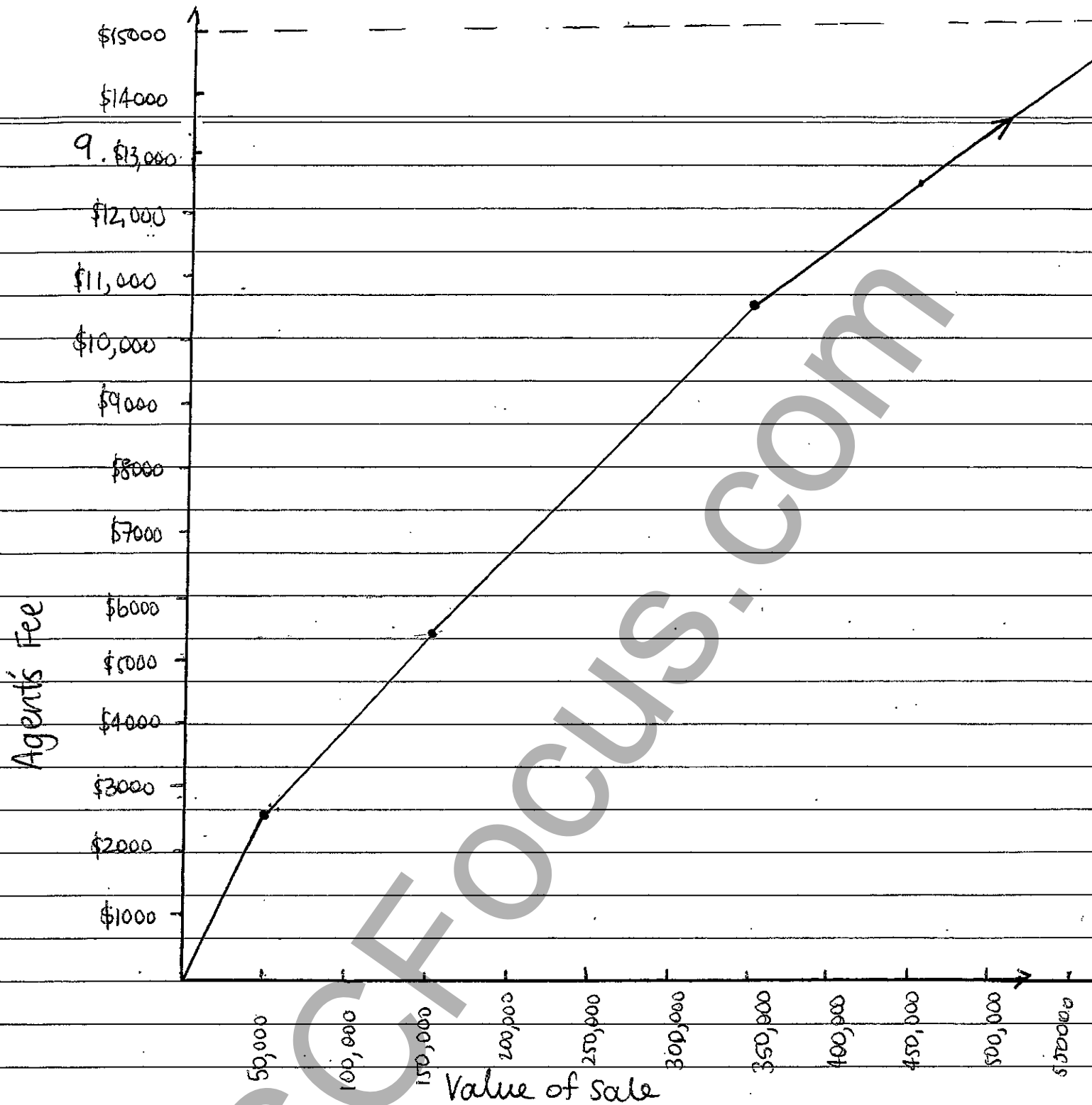
He is making monthly repayments
of \$661

If interest rates fell to 6% he could
still afford payments of \$661.

This means he could still
afford \$13.22 per \$1000.

From the table in the 6%
column I can see payments
for \$13.14 (this is as close to
\$13.22 as I can find). It will
take 8 years. (1)

$\therefore$ he would repay the loan
2 years faster 6



Value of sale	Agent's Fee	Range of commission
Up to \$ including 50,000	5%	$\frac{5}{100} \times 50,000 = 2500$
Next \$100,000	3%	$\frac{3}{100} \times 100,000 = 3000 + 2500 = 5500$
Next \$200,000	2.5%	$\frac{2.5}{100} \times 200,000 = 5000 + 5500 = 10500$
Thereafter	2%	$\frac{2}{100} \times 100,000 = 2000 + 10500 = 12500$

iv \$1365.30 per month on
a \$90,000 loan

$$1365.30 \div 90 = \$15.17$$

per thousand.

\$15.17, 10% p.a matches
up with 8 years. (1)

∴ to repay the loan in
half the time would take
them 4 years.

This means they'd have to
pay \$25.36 per month
per thousand dollars

$$25.36 \times 90 \quad (1)$$
$$= \$2282.40 \text{ per month}$$

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