## **Year 11 Essentials**

## **Major Test 1**

Name: Han Stires.



Resources allowed: Calculator and 1 page of notes

## Show your working - points will be lost for no working out!

Total Marks:

/45

Total Time: 45mins

Weighting:

- A car is moving at 500m every 30 seconds. Convert this to the following units. [1,1,1,1]
  - a) Metres per second

b) Metres per minute

c) Metres per hour

d) Kilometres per hour.

- 2. What are the units you would use to measure the speed of; [1,1,1,1]
  - a) a helicopter

b) someone running

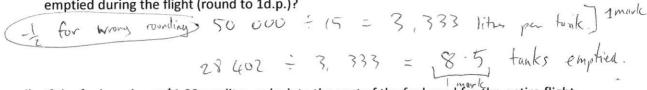
c) a motorbike

- m/s m/min / Any other sensible km/hr m/s suggestion allowed.
- d) a snail

- 3. While flying to Bali, a Boeing 747 jumbo jet uses fuel at about 11 litres per km. Show working out for each section. [1,2,2,1,1]
  - a) how much fuel is needed for the flight to Bali if it is a distance of 2,582km.

b) If the Boeing 747 carries 50,000 litres of fuel, what percentage of the aeroplanes fuel is used on the flight?

c) If the aeroplanes fuel is stored in 15 tanks of equal size, how many of the tanks are emptied during the flight (round to 1d.p.)?



d) If the fuel used cost \$1.90 per litre, calculate the cost of the fuel used for the entire flight to the nearest \$1?

e) If the flight holds an average of 350 passengers, what is the cost per person (to the nearest \$1) for fuel for the entire flight?

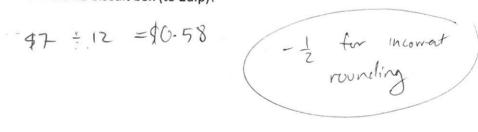
- 5. Use leading digit estimation to answer these. **DO NOT GIVE EXACT ANSWERS.** Show working out. [1,1,1,1]
  - a)  $345 \times 47$   $300 \times 50$  -15000
  - b) 456 + 209 + 198 500 + 200 + 200 = 900
  - c)  $379 \div 42$   $400 \div 40 = 10$
  - d) 6656-1982 - 7000 - 7000 - 5000
- 6. a) GST of 10% needs to be added to all the following prices. What will the final prices be once GST has been added? Show working out. [1,1]

- b) A shop is advertising a sale. Given the original prices calculate the sales price for each of the following. [1,1]
  - a. \$210 discounted by 1/3

$$210 - 210 \times \frac{1}{3} = $160$$
 or  $210 \times \frac{2}{3} = $160$ 

b. \$45 discounted by 15%

- 7. Michelle is selling biscuits at a weekend stall. You can get one biscuit for \$0.75 or for \$7 you can get a box of 12 biscuits. Show working out. [2,2,2]
  - a) What is the cost per biscuit in the 12 biscuit box (to 2d.p)?



b) If you buy 12 biscuits, how much do you save by getting a box instead of buying individually?

c) You are having a party and want to buy 30 biscuits, what is the cheapest way of buying them? Show your working to explain your answer.

$$30 \times 40.75 = $22.50$$

$$2 \times 57 + 6 \times 50.75 = $18.50$$

$$2 \times 57 + 6 \times 50.75 = $18.50$$

$$= $21.00$$
I mark for working that shows they checked that shows they checked that shows the chapest

8. To calculate the number of calories we need each day we use the Base Metabolic rate formula.

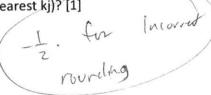
$$BMR = 66 + (13.7 \text{ x weight}) + (5 \text{ x height}) - (6.8 \text{ x age})$$

BMR = 
$$655 + (9.6 \times weight) + (1.8 \times height) - (4.7 \times age)$$

a) Steve is a 25 year old male who weighs 73kg and is 182 cm. How many calories does he need each day? [2]

b) To convert his calories to Kilojoules he needs to multiply his answer by 4.182. How many kilojoules does Steve require (to the nearest kJ)? [1] - 2 for incomput
rounding

c) How many kilojoules does Steve use every hour (rounded to the nearest kj)? [1]



- d) Steve has an office job and spends most of his day sitting down. However he does ride to and from work each day. He estimates he does the following activities over a 24 hour period.
  - 7 hours sleeping
  - Sitting or standing 12 hours
  - Riding to or from work at a moderate pace for a total of 1 hour a day
  - Cleaning the house and other chores 2 hours
  - Walking around slowly 2 hours

Use the list of multipliers below to calculate his exact daily energy needs. [4]

Physical Activity Level			Multipli	er	-		7205
Sleep			1.0	x 315 x	+	-	5670
Sitting or standing			1.5	x 315 ×	12	=	2
Walking Slowly			3.0	x315 X	1	=	1890
Cleaning and light household chores	Pl domes in the		4.0	×315 X	2	_	2500
Cycling at a moderate pace			8.0	4315 X	] [-	=	2760
			1	,			14805
-		Cor	each	error.			

## 14 805 Kj

e) Using expec	a Kilojoule t him to ga	counti	ng app, Stev	e estimates h Explain your a	e eats around 1	.3,500kj per	day. Woul	ld you
						then	he	uses
he	should		(6086	weight.	Kilojoules	ark for mank for	correct	answer easonable
at time and a l	halt. Melis	sa earn	s \$4600 per	month.	regular pay an	d another 10	) hours a w	veek
Express both p $ \frac{Mwlc}{$770} \times \\ $20 \times 10$	oays as a w  36 =  0 x15	72 = 30	murk l	tor each we for answering	most money:  elly rule  metissa  4600 =	Show worki $4 = 5$ $2 = 52 = 6$	ng out. [3	Answer mas Vary Depending on how key have been faught this
10. Calculate	the followi	ng. Sho	المدار ج w working o	جُمِ £ مُرسَة ut. [1,1,1]	the mo	st		—Itaught this
a) 4(3+								
= 4(5	,							
= 20	= 4 5. V	/						
b) 4 + 3(2								
	x4 - 16	•						
= 4 + 17 = 16	2 - 16	= C				la.		
c) ((4 <sup>2</sup> –	$3^2)^2 + 2)$	÷(6-	- 3) =					
7.	((16	a) 7 +	2) : (	3)				
_	( 52	+7)	: 3	- /				
	= 2	7-3						