Name: Answers	Date:
Class:	

Baldivis Secondary College

Year 11 Essential Mathematics 2018

Mini-Test 1.5

Topic – Units of Energy

/ ~~13~~ 12

Weighting: 1%

Total Time:	15 minutes
Weighting:	1%
Equipment:	To be provided by the student: Pen, pencil, ruler,1 double sided A4 page of notes, scientific calculator

Full working out must be shown to get full marks. Attempt all questions.

Question 1

4 marks

Convert the following to kilojoules.

a) i) 6070 joules

6070 ÷ 1000

= 6.07 kj

ii) 250 calories

250 × 4.186

= 1046 kj

iii) 867 joules

867 ÷ 1000

= 0.867 kj

iv) 5.8 Wh

5.8 × 3600 000

= 20 880 000 j

= 20 880 kj

(1 mark each correct answer)

Question 2

1 mark

An air conditioner has a power rating of 3.2 kW. Write this rating in watts.

3.2 kW × 1000

= 3200 W

(1 mark for correct answer)

Question 3

1 ~~2~~ marks

During swimming training, Michael swam for 90 minutes burning off 3900 kJ of energy.

How many calories did he burn?

3900 ÷ 4.184

= 932 Cal

(1 mark for correct answer)

Question 4 — 3 marks

Jayme has a recommended daily intake of 8700 kJ. She eats 60g of a fruit and nut trail mix with the following nutritional information.

Nutrition Information

Servings per package: 8
Serving size: 30g

Nutrition	Avg Qty Per Serving	Avg Qty Per 100g
Energy	648kJ	2160kJ
Protein	5.1g	16.9g
Fat, total	10.7g	35.6g
– saturated	1.4g	4.8g
Carbohydrate	8.9g	29.6g
– sugars	6.9g	23.0g
Sodium	9mg	29mg

a) How many kilojoules of energy does Jayme consume?

$648 \times 2 = 1296\,kJ$ or $\frac{60}{100} \times 2160 = 1296\,kJ$

(1 mark for correct working + 1 mark for answer)

b) What percentage of her recommended daily intake is this?

$\frac{1296}{8700} \times 100 = 14.9\%$ or 15%

(1 mark for correct answer rounded to 15% is okay)

Question 5 — 3 marks

a) Doug's 60 cm television has a power rating of 150 W, while Jeremy's 96 cm television is rated at 320 W. They both use their televisions for 1 hour every day. How much less energy will Doug's television use per year?

$320 - 150 = 170\,W$ difference

$170 \times 1\,hr \times 365 = 62050\,Wh$

$= 62.05\,kWh$

(1 mark for power difference + 1 mark for kWh)

b) What is the difference in cost in dollars if the cost of energy is 24c/kWh?

$0.24 \times 62.05 = \$14.89$

(1 mark for $ answer
half marks for correct answer in ¢)