Name: _____ Date: _____

Mathematics Essential

Test 2, 2015

Topics – Linear measurement & Area

	____
	55
	=____ %

Total Time:	*60 minutes*
Total Reading:	*5 minutes*
Total Working:	*55 minutes*
Weighting:	*5% of the year.*
Equipment Allowed:	*Calculator*

You must include all working out to receive full marks

CALCULATOR ASSUMED

1. (4 marks: 1, 1, 1, 1)

Convert the following linear measurements.

a) 58.6 cm to mm
586 mm ✓

b) 87.2 mm to cm
8·72 cm ✓

c) 10.2 km to m
10200 m ✓

d) 76.4 cm to m
0·764 m ✓

2. (3 marks: 1, 1, 1)

a) Estimate the height of the classroom door. 2·5 → 3·0 m ✓

b) What unit of measurement would you use to find the length of your desk?
cm or m ✓

c) What unit of measurement would you use to find the length of the school oval?
m ✓

3. (2 marks)

Convert these lengths to metres and then state which is longest.

0.005 km	6.5 m	550 cm	7880 mm
5 m	6·5 m	5·5 m	7·88 m ✓

7880 mm 6·5 m 550 cm 0·005 km

4. (4 marks: 2, 2)

a) Peter has a 2.5 m length of wood that he cuts into five equal lengths. State the length of each piece in cm. $2.5 \div 5 = 0.5$m ✓
50cm ✓

b) If a length of timber is 1.2 m how many pieces of timber are needed to build a square frame that has a perimeter of 6 m?
$6 \div 1.2$ ✓ $= 5$ pieces ✓

5. (6 marks: 1, 2, 1, 2)

1 inch is equal to 25mm.

a) How many mm are there in 6 inches?
$25 \times 6 = 150$mm ✓

b) Yesterday 550 mm of rain fell. How many inches of rain is this?
$550 \div 25 = 22$ inches ✓

1 mile is equal to 1600m.

c) A mile can be divided into 8 furlongs. How many metres is a furlong?
$1600 \div 8 = 200$m ✓

d) How many furlongs in 4800 m?
$4800 \div 200$ ✓ $= 24$ Furlongs ✓

6. (4 marks: 1, 1, 2)

In the old system of measurement: 12 inches = 1 foot and 3 feet = 1 yard

a) Convert 160 inches to feet.
$160 \div 12 = 13.33$ feet ✓ 13 feet 4 inches

b) Convert 27 feet into yards.
$27 \div 3 = 9$ yards ✓

c) How many feet and inches in 2.5 yards?
$2.5 \times 3 = 7.5$ feet ✓ 7 feet 6 inches ✓

7. (10 marks: 2, 2, 4, 2)

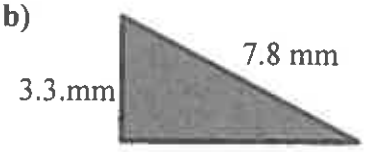
Find the perimeter and area of the shapes below:

a)

$P = 21.4$ cm ✓

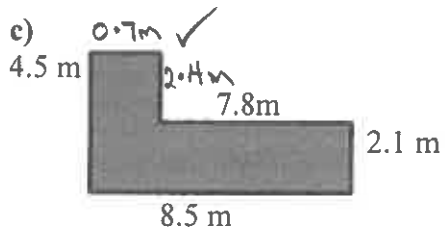
$A = 6.5 \times 4.2$
$= 27.3$ cm^2 ✓

b)



$P = 18$mm ✓

$A = \frac{3.3 \times 6.9}{2} = 11.39$ mm^2 ✓

c) 

$P = 26\text{ m}$ ✓

$A = (4.5 \times 0.7) + (7.8 \times 2.1) = 3.15 + 16.38$

$= 19.53\text{ m}^2$ ✓

d) A 4cm square.

$P = 4 \times 4 = 16\text{cm}$ ✓

$A = 4 \times 4 = 16\text{ cm}^2$ ✓

8. (5 marks: 1, 1, 1, 2)

Convert the following to the units indicated

a) 16 cm² to mm²

1600 mm^2 ✓

b) 12 m² to cm²

120000 cm^2 ✓

b) 176000 m² to km²

0.176 km^2

d) 970 cm² to km²

0.000000097 km^2 ✓ ✓

9. (3 marks: 1, 1, 1)

Sue wishes to paint a wall that measures 4.3m by 7.1 m.

a) What area is to be painted?

$4.3 \times 7.1 = 30.53\text{ m}^2$ ✓

b) 1 litre of paint covers 4 m². How much paint will she need?

$30.53 \div 4 = 7.63\text{L}$ ✓

c) Paint costs $32.90 per metre. How much will the paint cost?

$7.63 \times 32.90 = \$251.11$ ✓

10. (6 marks: 3, 3)

Areas of land are often measured in hectares. A hectare is 100m by 100m.
1 acre = 4.047 m².

10000 m^2 ✓

a) How many acres are in 3 hectares?

30000 m^2 ✓

$30000 \div 4.047 = 7412.9\text{ acres}$ ✓

b) How many hectares are in 30 acres?

$30 \times 4.047 = 121.41\text{ m}^2$ ✓

$121.41 \div 10000 = 0.012141\text{ hectares}$ ✓

11. (8 marks: 4, 2, 2)

a) Peter owns two blocks of land. One is 126 m by 92 m and the other is 177 m by 56 m. Which is the bigger block of land?

126 × 92 ✓
= 11592 m² ✓

177 × 56 ✓
= 9912 m² ✓

b) He decides to fence the bigger block of land. How many metres of fence will there be?

(126 × 2) + (92 × 2) ✓
= 436 m ✓

c) If fencing costs $12.50 per meter how much will it cost him to fence the bock?

436 × $12.50 ✓
= $5450 ✓