Teacher	Tutor Class	Name [Print clearly]

ACG PARNELL COLLEGE
ACADEMIC COLLEGES GROUP

MAY EXAMINATIONS 2014

SUBJECT: Year 7 Mathematics

Time allowed: 1 hour 30 minutes **Total Marks:130**

READ THESE INSTRUCTIONS FIRST

All your answers and working are to be written on the examination paper.

Calculators are permitted.

Show all your working for questions worth more than 1 mark.

Answer **all** questions.

The number of marks is given in [ ] at the end of each question or part question.

Section	Total	Mark
Whole Numbers	30	
Measurement	30	
Location	20	
Fractions, Decimals, Percentages	30	
Problem Solving	20	
TOTAL	130	

This document consists of 19 printed pages and 1 blank page

1. Using the number 3658 answer the following questions:

   a) What is the place value of the 6? 100's / hundreds [1]

   b) What is the value of the 5? 50 [1]

   c) Round the number to the nearest 100. 3700 [1]

   d) Write the number in expanded form.

   $3 \times 1000 + 6 \times 100 + 5 \times 10 + 8 (\times 1)$

   [1]

2. Give examples of the following

   a) a square number. [1]

   b) a prime number [1]

   c) a composite number [1]

   Any correct number

3. List the first 4 multiples of 12 12, 24, 36, 48 [1]

4. List the factors of 12 in factor pairs 1, 12 3, 4 2, 6 [2]

5. Round 348 to:

   a) the nearest 10 350 [1]

   b) the nearest 5 350 [1]

   d) How would you write 348 using one figure approximation?

   300 [1]

6. Write $4 \times 1000 + 2 \times 100 + 7 \times 10 + 5 \times 1$ in compact form.

   4275 [1]

14

7. Using the numbers 21 and 7 show full working to find:

a) the sum of the two numbers

$$\begin{array}{r} 21 \\ +\ 7 \\ \hline 28 \end{array}$$ ✓

28 ✓ [2]

b) the product of the two numbers

$$\begin{array}{r} 21 \\ \times\ 7 \\ \hline 147 \end{array}$$ ✓

147 ✓ [2]

c) the difference between the two numbers.

$$\begin{array}{r} {}^{1}\not{2}{}^{1}1 \\ -\ 7 \\ \hline 14 \end{array}$$ ✓

14 ✓ [2]

8. Calculate the following (showing full working):

a) 74 + 58 +347=

$$\begin{array}{r} {}^{1}74 \\ 58 \\ +\ {}^{1}347 \\ \hline 479 \end{array}$$ ✓

479 ✓ [2]

b) 37 × 14=

$$\begin{array}{r} {}^{2}37 \\ 14 \\ \hline {}^{1}148 \\ 370 \\ \hline 518 \end{array}$$ ✓

518 ✓ [2]

c) 12624 ÷ 16

$$\begin{array}{r} 789 \\ 16\overline{)12624} \\ -112 \\ \hline 142 \\ -128 \\ \hline 144 \\ -144 \\ \hline 0 \end{array}$$ ✓

OR

$$\begin{array}{r} 789 \\ 16\overline{)12^{14}6^{14}24} \end{array}$$

789 ✓ [2]

(12)

9. Calculate showing full working,

a) $3 + 5 \times 6 - 2 =$

3 + 30 - 2 ✓
33 - 2

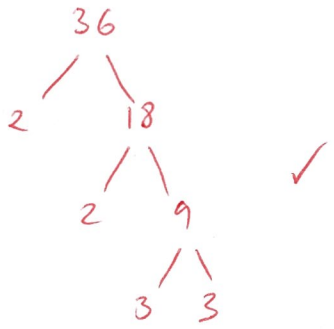
31 [1]

b) $(18 + 2) \times 4 - 3 =$

20 x 4 - 3 ✓
80 - 3

77 [1]

10. Write 36 as a product of prime factors.



✓

✓
2x2x3x3 [2]

(4)

Measurement section: take off ½ mark for incorrect units to a maximum of 2 marks

11. Below is a table of the length and width of various rectangles.
Complete the table by filling in the blanks.

Length	Width	Area	Perimeter
4 m	3 m	12 m²	14m
2 m	5m	10 m²	14m
7m	5m	35 m²	24 m

OR

5m 7m

[6]

12. Complete the sentences below by giving an example for each:

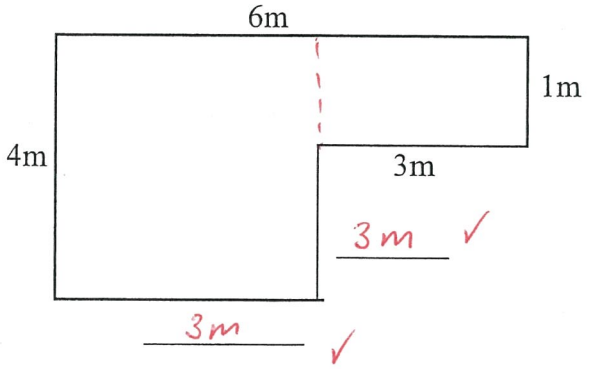
a) A unit of length measurement is mm, cm, km, m [1]

b) A unit of mass measurement is mg, g, kg, t [1]

c) A unit of capacity measurement is mL, L [1]

13.

b) Find the missing lengths of the sides in the diagram below. [2]



c) Find the perimeter of the shape.

(Allow 1 follow through mark if b) is incorrect)

6 + 4 + 3 + 3 + 3 + 1

20 m [2]

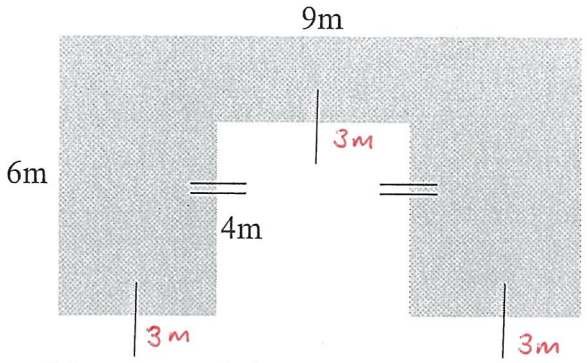
d) What is the area of the shape?

3×4 + 3×1

15 m² [2]

15

14. Below is a courtyard.



a) Find the perimeter of the courtyard above.

6 + 9 + 6 + 3 + 4 + 3 + 4 + 3

38m [2]

b) Calculate the area of the courtyard

6 x 3 = 18

3 x 2 = 6

6 x 3 = 18

42 m^2 [2]

c) How many 250 mm by 250 mm square tiles would be needed to cover the whole shape?

1 m^2 = 16 tiles

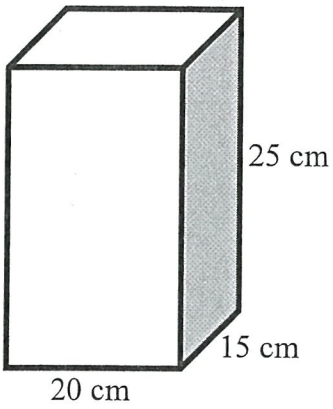
42 x 16

672 [1]

(5)

15. A days milk from one cow fills the container shown in the diagram below.

a) What is the volume of the container?



25 x 15 x 20

7500 cm^3 [2]

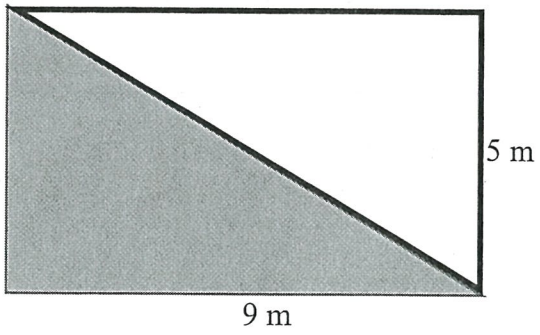
b) What is the capacity of the container?

7500 mL [1]

c) How many 1 L milk cartons could be filled from the milk of this one cow?

7 or 7.5 [1]

16. Calculate the area of the shaded triangle shown.



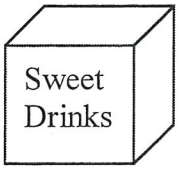
9 x 5 = 45 m^2

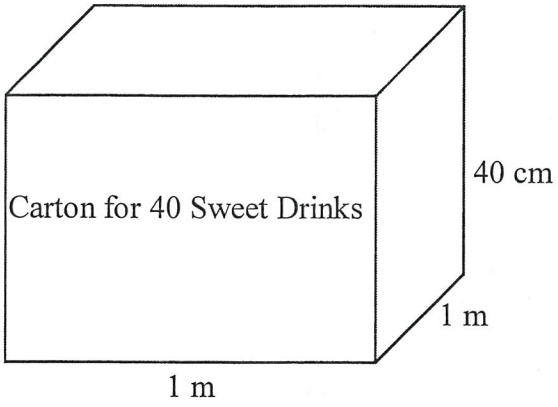
45 ÷ 2

22.5 m^2 [1]

(5)

17. The Magic Box Company has been asked to make drink containers that look like the carton below for the Sweet Drink Company. The drink containers will be put into cardboard boxes that measure 1 m by 1 m by 40 cm. The drink containers should be made so that exactly 40 drinks fit into each carton leaving no space in the carton.





a) Calculate the volume of the **carton**.

1 x 1 x 0.4

OR 100 x 100 x 40 ✓

0.4 m^3 400,000 cm^3 [1]

b) What should the dimensions of the Sweet Drinks containers be to fit exactly 40 into the carton?

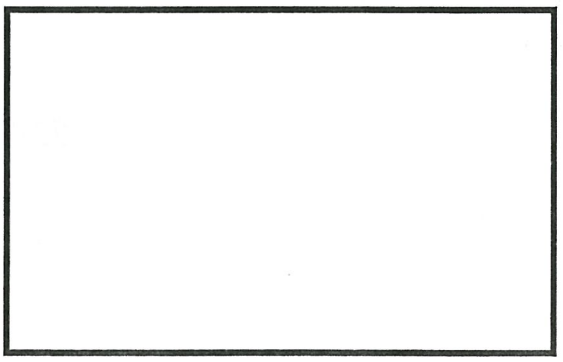
✓ for good attempt

10 x 10 x 4 cm ✓

[2]

18. Accurately measure the rectangle shown and give the lengths of the sides in millimetres. [2]

73 ± 1 mm ✓



✓

46 ± 1 mm

3

19. On the grid below draw the following:

a) the x and y axes from 0 to 16. [2]

b) Plot the point (2,4) and clearly label it A. [1]

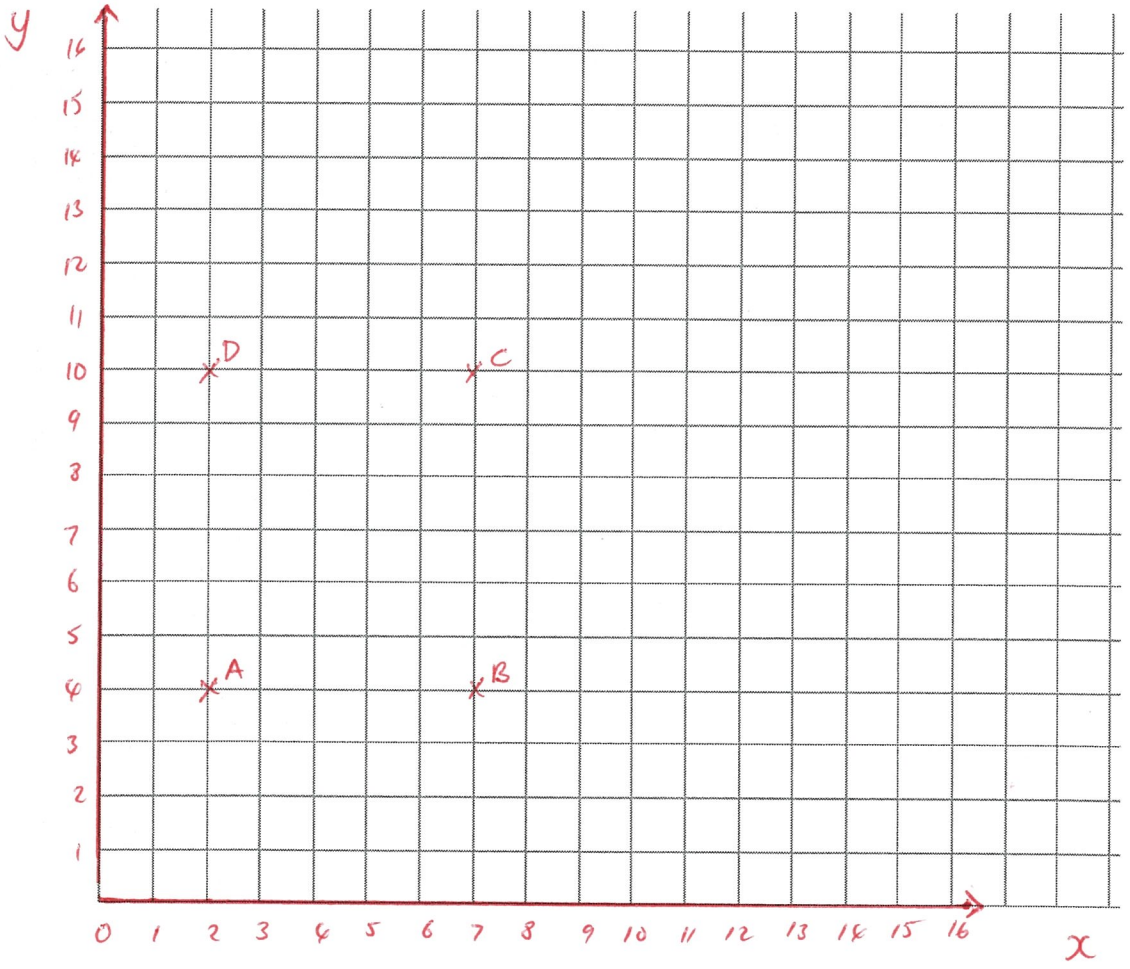
c) **Starting from A** move 5 squares East and label the new point B. [1]

d) **From point B** move 6 squares North and label the new point C. [1]

e) Mark a point D that is the fourth corner of the rectangle ABCD.

What are the coordinates of D? (2,10) [2]

follow through if B incorrect

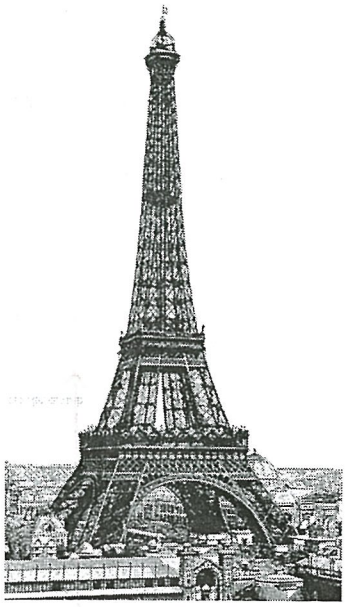


f) What is the compass direction **from** A **to** C? NE [1]

8

20. The Eiffel Tower in Paris is approximately 300 m high.

a) How tall would a souvenir model of the Eiffel Tower be if it was made at a scale of 1:1000?



✓

300 ÷ 1000 = 0.3 m

OR

30000 ÷ 1000 = 30 cm

0.3m / 30 cm ✓ [2]

b) Key chain souvenir models of the Eiffel Tower are 5 cm tall. Express the scale of the key chain model in the form

30000 ÷ 5 ✓

1: 6000 ✓ [2]

21. Below is a map of part of Paris.

a) Using the scale given in the map, how far is it from Centre Pompidou to La Coupole?

7.5 cm (±0.5) x 500

✓

2500 m [2]

b) What is the compass direction of Montparnasse from Centre Pompidou?

SW [1]

22.

a) Give the coordinates of the point labelled A.

(6, 5.5) [1]

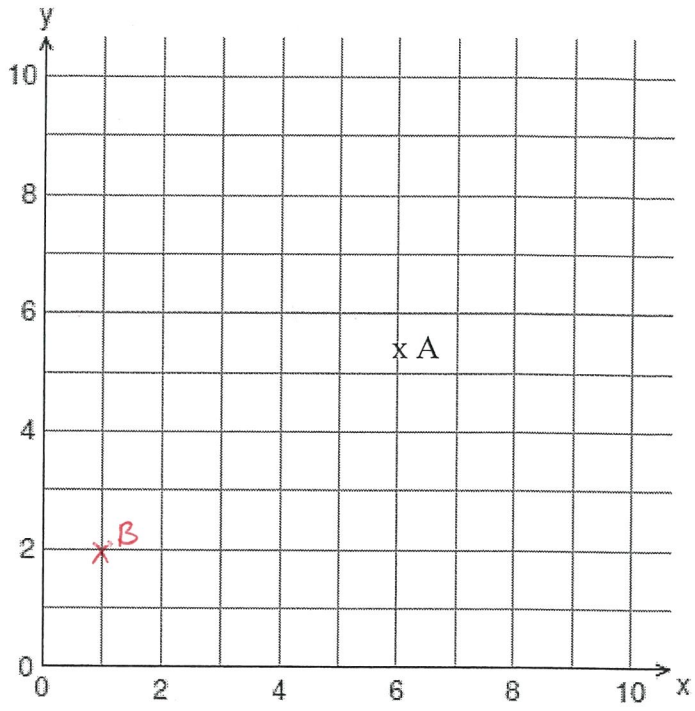
b) Plot and carefully label point B at (1,2) [1]

c) Using vertical and horizontal movements only shown how you would travel from A to B.

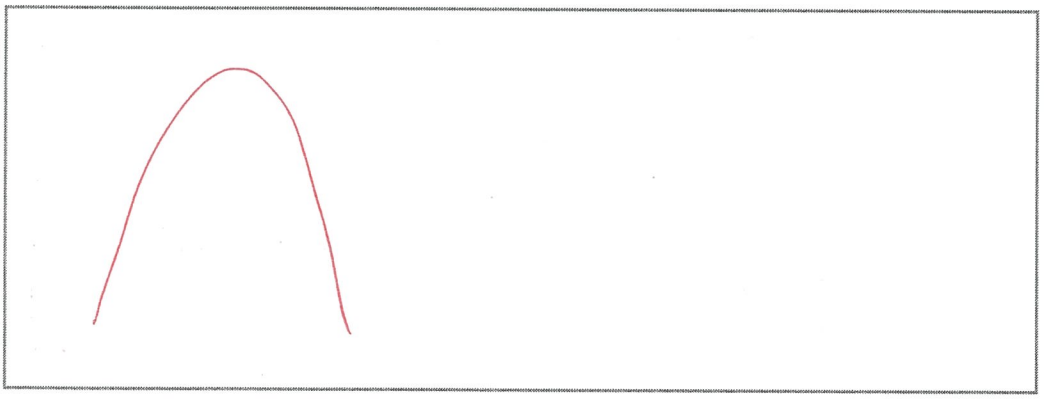
5 left (west)

3 ½ down (south)

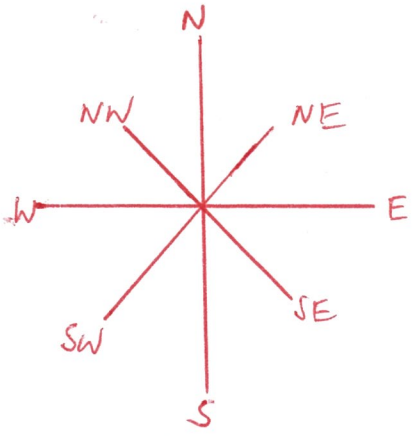
[1]



23. In the box below draw the locus of a ball as it is thrown up in the air and then allowed to come back down again. [1]



24. Draw a compass clearly labelling the 8 standard compass directions.



[1]

5

25. Using the number **48.386** answer the following questions.

a) What is the place value of the 8 digit? ones / unit OR hundredths / 100ths [1]

b) What is the value of the 3 digit? 3 tenths [1]

c) Write the number in expanded form.

$4 \times 10 + 8 \times 1 + 3/10 + 8/100 + 6/1000$

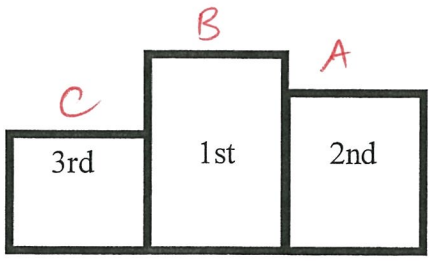
$(0.3 + 0.08 + 0.006)$ [1]

d) Write the number as a mixed number.

$48\ 336/1000$ [1]

26. Three runners A, B and C ran a race and recorded the following times A =52.382 secs, B=52.379 secs and C=52.390 secs.

a) Place the three runners in the correct order on the podium shown. [1]



b) Add the three times together (no marks given without full working).

$$\begin{array}{r} {}^{1}52.{}^{2}3{}^{1}79 \\ 52.390 \\ 52.382 \\ \hline 157.151 \end{array}$$ ✓

157.151 ✓ [1]

c) What is the time difference between the first and third in the race? (no marks given without full working).

$$\begin{array}{r} 52.{}^{8}3{}^{1}90 \\ -\ 52.379 \\ \hline 0.011 \end{array}$$ ✓

0.011 ✓ [1]

7

27. Calculate showing full working.

a) $2.46 \times 3.2 =$

$$\begin{array}{r} {}^{1}2.46 \\ \times\ 3.2 \\ \hline {}^{1}492 \\ 7380 \\ \hline 7.872 \end{array}$$ ✓ ✓

[2]

b) $6.432 \div 5 =$

$$5\overline{)6.{}^{1}4{}^{4}3{}^{3}2{}^{2}0} \quad 1.2864$$ ✓ ✓

[2]

28. Complete the fractions shown.

a) $\frac{3}{8} = \frac{9}{24}$ ✓

[1]

b) $\frac{2}{3} \quad \frac{10}{15}$ ✓ $\quad \frac{40}{60}$ ✓

[2]

29. Simplify $\frac{8}{28}$ as far as possible.

$\frac{2}{7}$ ✓

_____[1]

30. Rewrite $\frac{21}{4}$ as a mixed number.

$5\ \frac{1}{4}$ ✓

_____[1]

31. Turn $4\frac{7}{8}$ into an improper fraction.

$\frac{39}{8}$ ✓

_____[1]

10

32.

a) Find the lowest common multiple of 6 and 8.

6 : 6, 12, 18, (24)
8 : 8, 16, (24)

24 ✓ _____[1]

b) Change both $\frac{5}{8}$ and $\frac{5}{6}$ into fractions with the lowest common denominator.

✓ ✓
$\frac{15}{24}$, $\frac{20}{24}$ _____[2]

33. Calculate

a) $\frac{2}{7} + \frac{4}{7} =$

$\frac{6}{7}$ ✓ _____[1]

b) $\frac{9}{11} - \frac{4}{11} =$

$\frac{5}{11}$ ✓ _____[1]

34. Jake has a bag of 24 marbles. He gives $\frac{3}{8}$ of his marbles to his friend Albert.

How many marbles does he give to Albert?

✓
24 ÷ 8 × 3

9 ✓ _____[2]

35. Convert $\frac{3}{8}$:

a) Into a decimal.

0.375 ✓ _____[1]

b) into a percentage

37.5 % ✓ _____[1]

(9)

36. Find 22% of 880.

880 ÷ 100 x 22

193.6 ✓

_____[1]

37. At a shop everything was reduced by $\frac{1}{4}$ during a sale for 1 week .
Alex paid $45 for a book.

a) How much would the book have cost before the sale?

45 ÷ 3 x 4 ✓

$60 ✓

_____[2]

b) After one week everything was then discounted further by another 30%.
How much would the book cost now during the second week of the sale?

45 x 70 ÷ 100

$ 31.50 ✓

_____[1]

(4)

Problem Solving (show full working for all questions)

38. A cake is made from the ingredients listed below.
0.5 kg flour, 0.45 kg butter, 0.47 kg sugar, 1.8 kg mixed fruit, 4 eggs (70 g each)

a) When all of the ingredients are mixed together how much does the cake weigh?

$0.5 + 0.45 + 0.47 + 1.8 + 4 \times 0.07$

3.5 kg ✓ [1]

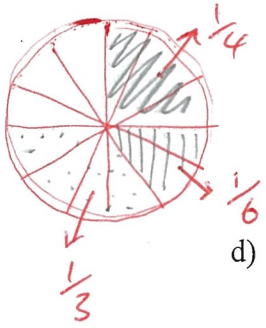
b) The cake loses 12% of it weight during cooking. What is its final weight?

Their a) $\times$ 0.88

$3.5 - 0.42$

3.08 kg ✓ [1]

c) At snack time John ate $\frac{1}{3}$ of the cake, Mary ate $\frac{1}{6}$ and Albert ate $\frac{1}{4}$.
What fraction of the cake was eaten?



$\frac{1}{3} + \frac{1}{6} + \frac{1}{4} = \frac{9}{12}$

9/12 or 3/4 [1]

d) What fraction was left?

3/12 or 1/4 [1]

39. A train engine pulls 4 identical carriages. The engine is $\frac{2}{3}$ the length of a carriage and the total length of the train (4 carriages plus the engine) is 86.8 m.
Calculate the length of the engine.

$86.8 \div (4\frac{2}{3})$ ✓

$= 18.6$ m

$18.6 \times \frac{2}{3} = 12.4$

✓
12.4m [2]

(6)

40. At the supermarket Jane sees signs for potatoes.

Show by your calculations which is better value, Krispy or Bonza.

Krispy 4 ÷ 6 = $0.66 per kilogram ✓

Bonza 1.8 ÷ 2.5 = $0.72 per kilogram ✓

∴ Krispy better value

[2]

41. Jeremy bought 32 boxes of Gummy Bears for $6.30 a box. There were 140 Gummy Bears in each box. He repackaged them into small bags with 20 Gummy Bears in each bag and sold each bag for 70 cents.

a) How much did the Gummy Bears cost him to buy?

6.30 × 32

$201.60 ✓ [1]

b) How many **bags** of Gummy Bears did Jeremy have to sell?

32 × 140 = 4480

4480 ÷ 20 =

224 ✓ [1]

c) How much profit did he make when he had sold all of the Gummy Bears?

224 × 0.7 = 156.80 ✓

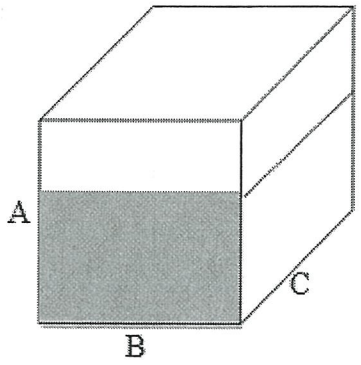
156.80 − 201.60 ✓

−$44.80 [2]

loss

(6)

42. The container shown has sides where:
A=20 cm, B=50 cm and C=60 cm.



a) Find the volume of the container.

20 x 50 x 60

✓

60,000 cm^3 [1]

b) The container is filled with 45 litres of water.
What are the dimensions of the part of the container which is filled with water?

60,000 cm^3 = 60 L

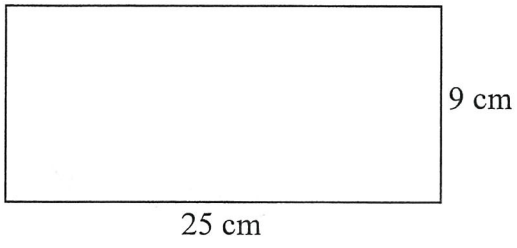
$\frac{45L}{60L} = \frac{3}{4}$ ✓

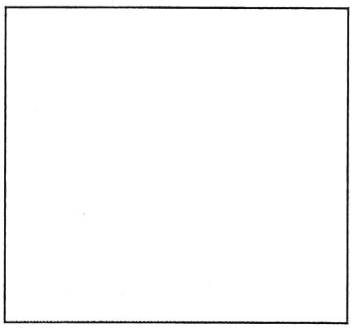
3/4 x 20 = 15

✓

15 by 15 by 60 cm [2]

43. The rectangle and square shown below have the same area. The rectangle is 25 cm by 9 cm.





a) What is the area of the rectangle?

9 x 25

225 cm^2 ✓ [1]

b) What are the dimensions of the square?

? x ? = 225

15cm ✓✓ [2]

6

44. A wooden box weighs 22kg when it is half full of apples and weighs 15kg when it is one-third full of apples. What is the weight of the box when empty?

$\frac{1}{2} - \frac{1}{3} = 7kg$ ✓

$\frac{1}{6} = 7\,kg$ ∴ box is $22 - 7$

$15 - 14 = 1\,kg$

1 kg ✓ [2]

(2)