N4 NUMERACY 1.5

This resource is to support pupils in passing the appropriate National 4 Assessment Standard. The questions and marking schemes used are from SQA past papers and as such test the topics in their entirety from grade A to C and *may* include other areas from the course. In addition the questions from **Paper 1** (P1) should be completed **without** the use of a calculator and questions from **Paper 2** (P2) permit the use of a calculator.

Each Assessment Standard is used to ensure pupils have the minimum competency on the specified sub-skills for the National 4 course. As such each Assessment Standard will test grade C work on that specific topic.

This resource is divided into two sections:

- Section A has an example on each sub skill for the relevant Assessment Standard and the marking scheme for these questions
- Section B has extra practice questions on this Assessment Standard and the marking scheme for these questions

Unit Assessment Standard	Sub skills	Section A – Question Number
Numeracy 1.5 Explaining decisions based on the results of measurements or calculations	Give a reason for one decision based on the results of a measurement **or** a calculation.	Q1 Q2

FORMULAE LIST

Circumference of a circle: $C = \pi d$

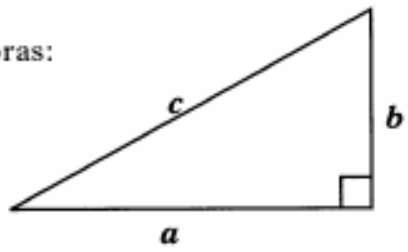
Area of a circle: $A = \pi r^2$

Curved surface area of a cylinder: $A = 2\pi rh$

Volume of a cylinder: $V = \pi r^2 h$

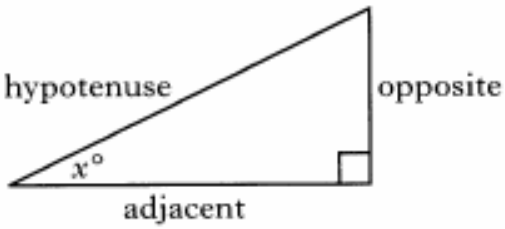
Volume of a triangular prism: $V = Ah$

Theorem of Pythagoras:



$$a^2 + b^2 = c^2$$

Trigonometric ratios in a right angled triangle:

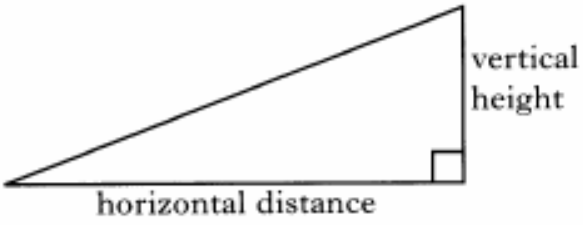


$$\tan x^\circ = \frac{\text{opposite}}{\text{adjacent}}$$

$$\sin x^\circ = \frac{\text{opposite}}{\text{hypotenuse}}$$

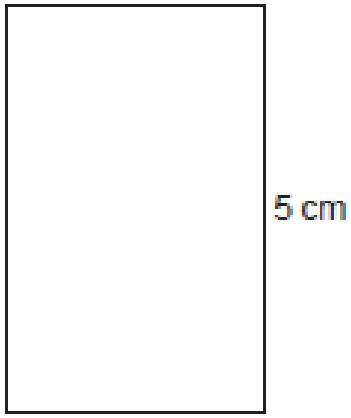
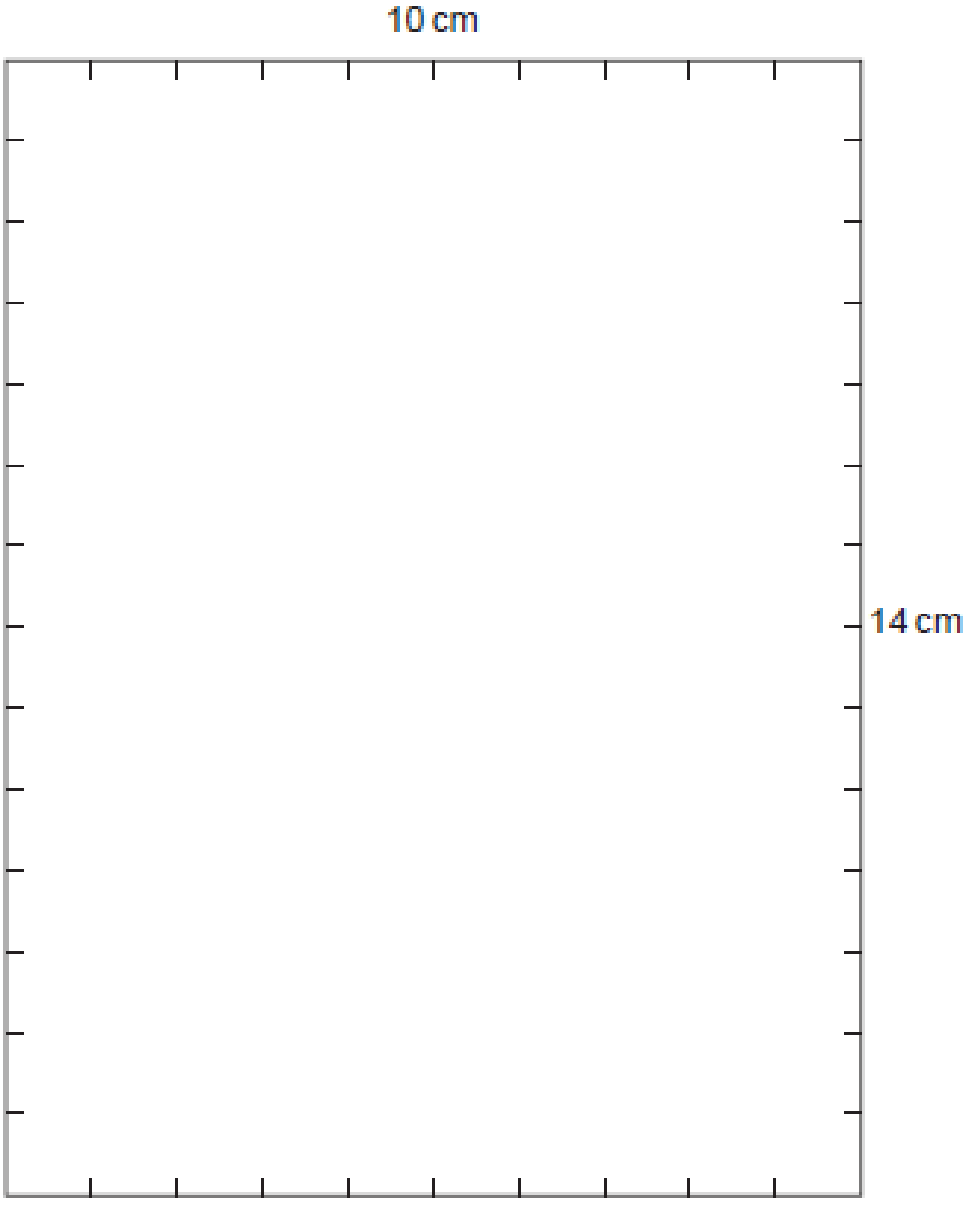
$$\cos x^\circ = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Gradient:



$$\text{Gradient} = \frac{\text{vertical height}}{\text{horizontal distance}}$$

Section A

Q		Marks
Q1 P1	**10.** This rectangle measures 5 cm by 3 cm. Rectangles measuring 5 cm by 3 cm are to be fitted, **without overlapping**, on the 14 cm by 10 cm box below. Draw these rectangles on the box to show the **maximum** number which can be fitted.   	**3**

Q2 P2

9.

Pizza Perfection — free delivery				
	Deep Base		Thin Base	
	9-inch	12-inch	9-inch	12-inch
Margherita	£3·60	£5·00	£3·30	£4·60
Mushroom	£4·25	£5·80	£4·15	£5·50
Pepperoni	£5·00	£6·30	£4·90	£6·00
Vegetarian	£5·05	£6·35	£4·95	£6·05
Hot Spicy	£5·15	£6·45	£5·05	£6·15

Iona and her friends order some pizzas to be delivered.

They order a 9-inch Hot Spicy deep base, a 12-inch Margherita deep base and two 12-inch Vegetarian thin base.

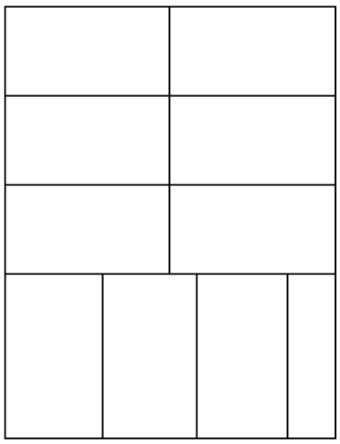
Iona and her friends have £21 between them. Do they have enough for their order? Justify your answer.

4

Section A

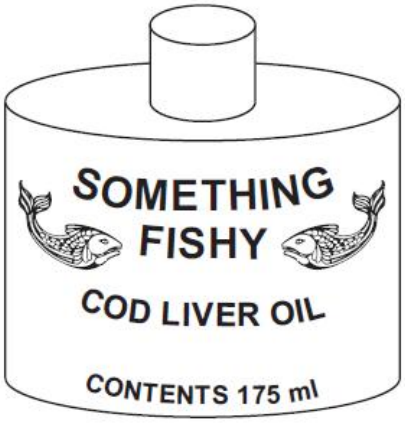
MARKING SCHEME

Section A - Marking Scheme

Q		Marks
Q1	10 | Ans: Diagram showing 9 rectangles fitted | 3 | •1 minimum six rectangles fitted •2 two further rectangles fitted •3 one further rectangle fitted. | •1 6 or 7 rectangles fitted •2 8 rectangles fitted •3 9 rectangles fitted  (RE) Notes: (i) For candidates who get the correct final answer without drawing – award 1/3	3
Q2	9 | Ans: (£) 22·25 | •1 cost of Margherita and Hot Spicy •2 cost of two Vegetarian •3 correct total | •1 5·15 + 5·00 •2 2 × 6·05 = 12·10 •3 (£) 22·25 No, Iona and her friends do not have enough money. They are £1.25 short, they have £21 and need £22.25.	4

Section B

Section B – Paper 1 – Questions

Q		Marks
1	10. There are 720 pupils in Laggan High School. The ratio of boys to girls in the school is 5 : 4. How many girls are in the school?	3
2	7. Joe is making a fruit pudding on Scottish Master Chef. In the fruit pudding recipe the ratio of raspberries to blackberries is 5:1. Joe's fruit pudding must contain a **total** of 240 grams of fruit. Calculate the weight of raspberries in his pudding. 	3
3	4. A bottle holds 175 millilitres of cod liver oil.  Billie takes one 5 millilitre spoonful each day. How many days will the bottle last? Show working to explain your answer.	3

Section B – Paper 2 – No Questions

Section B

MARKING SCHEME

Q		Marks
1	**10** **Ans: 320** •1 For knowing to divide 720 by 9 — •1 720 ÷ 9 •2 For knowing to multiply answer to above by 4 — •2 80 × 4 •3 All calculations correct within a valid strategy — •3 320 **Notes:** (i) **Alternative strategy** •1 For knowing to scale up, 1st step — •1 eg 10 : 8 •2 For knowing to continue to scale up — •2 eg 100 : 80 •3 All calculations correct within a valid strategy — •3 (400 :) 320 (ii) **Final answers** — **with working** — **without working** 320 — 3/3 — 2/3 400 : 320 — 3/3 — 2/3 (iv) For an incorrect calculation of the no. of boys followed by a correct subtraction from 720 – award 1/3	**3**
2	**7** **Ans: 200 (grams)** •1 knowing to divide 240 by 6 — •1 240 ÷ 6 (= 40) •2 knowing to multiply answer to above by 5 — •2 40 × 5 •3 all calculations correct within a valid strategy — •3 = 200 (grams)	**3**

Section B – Paper 1 – Marking Scheme

3	**4** Ans: 35 •[1] know how to calculate days — •[1] $175 \div 5$ •[2] correctly divide — •[2] 35 • 1 mark for explain the answer using numerical comparisons.	**3**

Section B – Paper 2 – No Marking Scheme