Name: _____

Foundation Unit 5a topic test

Date: _____

Time: 60 minutes

Total marks available: 55

Total marks achieved: _____

Questions

Q1.

Katie has *x* pets.
 Agatha has twice as many pets as Katie.
 Isabel has 3 more pets than Katie.

Write an expression, in terms of *x*, for the total number of pets that Katie, Agatha and Isabel have.

....

(Total for Question is 2 marks)

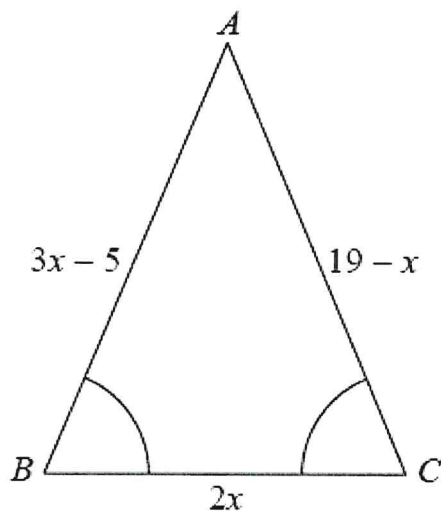**Q2.**

ABC is a triangle.

Diagram **NOT**
accurately drawn

Angle *ABC* = angle *BCA*.

The length of side *AB* is $(3x - 5)$ cm.

The length of side *AC* is $(19 - x)$ cm.

The length of side *BC* is $2x$ cm.

Work out the perimeter of the triangle.

Give your answer as a number of centimetres.

.... cm

(Total for Question is 5 marks)

Q3.

Rob buys *p* packets of plain crisps and *c* packets of cheese crisps.

(a) Write down an expression for the total number of packets of crisps Rob buys.

(1)

The formula

$$F = 1.8C + 32$$

can be used to convert between temperatures in degrees Celsius (*C*) and temperatures in degrees Fahrenheit (*F*).

(b) Change 28° Celsius into degrees Fahrenheit.

(2)

(c) Solve $4x + 2 = 20$

(2)

(d) Factorise $3x^2 - 2x$

(1)

(Total for question = 6 marks)

Q4.

(a) Solve $a + a = 18$

a = ...
(1)

(b) Solve $b - 4 = 8$

b = ...
(1)

(c) Solve $7c = 28$

c = ...
(1)

$P = 2x + 3y$
$x = 5$
$y = 4$

(d) Work out the value of P.

p = ...
(2)

(Total for Question is 5 marks)

Q5.

(a) Solve $5x = 45$

x = ...

(1)

(b) Solve $w - 8 = 20$

w = ...

(1)

(c) Solve $\dfrac{t}{7} = 5$

t = ...

(1)

(d) Solve $4x - 9 = 41$

x = ...

(2)

(Total for Question is 5 marks)

Q6.

Diagram **NOT** accurately drawn

In the diagram,

$AB = x$ cm
$BC = (x + 1)$ cm
$CD = 2x$ cm

$AD = 19$ cm

(a) Show that $4x + 1 = 19$

(2)

(b) Solve $4x + 1 = 19$

$x = \ldots\ldots\ldots\ldots\ldots\ldots\ldots$

(2)

(c) Work out the length of BD.

$BD = \ldots\ldots\ldots\ldots\ldots\ldots$ cm

(2)

(Total for Question is 6 marks)

Q7.

Angela and Michelle both work as waitresses at the same restaurant.

This formula is used to work out the total amount of money each waitress gets.

> **Total amount** = £6.50 × number of hours worked + tips

The table shows the number of hours Angela and Michelle each worked last Saturday.
It also shows the tips they got.

	Number of hours worked	**Tips**
Angela	8	£12
Michelle	7	£15

Who got the higher total amount of money last Saturday?
You must show clearly how you got your answer.

(Total for Question is 4 marks)

Q8.

* This formula is used to work out the body mass index, B, for a person of mass M kg and height H metres.

$$B = \frac{M}{H^2}$$

A person with a body mass index between 25 and 30 is overweight.

Arthur has a mass of 96 kg.
He has a height of 2 metres.

Is Arthur overweight? You must show all your working.

(Total for Question is 3 marks)

Q9.

Here is a rule for working out the area of a triangle.

Multiply the base by the height.

Then divide by 2

A triangle has a base of 12 cm and a height of 6 cm.

(a) Use the rule to work out the area of the triangle.

.... cm²

(2)

A different triangle has an area of 55 cm².
It has a height of 11 cm.

(b) Work out the base of this triangle.

.... cm

(2)

(Total for Question is 4 marks)

Q10.

(a) *n* is an integer.

$-1 \leq n < 4$

List the possible values of *n*.

....

(2)

(b)
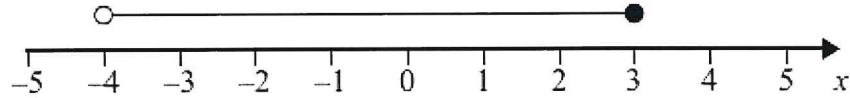
Write down the inequality shown in the diagram.

....

(2)

(c) Solve $3y - 2 > 5$

....

(2)

(Total for Question is 6 marks)

Q11.

(a) Solve $3p + 4 = 6$

....

(2)

$-5 < y \leq 0$

y is an integer.

(b) Write down all the possible values of *y*.

....

(2)

(Total for Question is 4 marks)

Q12.

$-2 < n \leq 3$

n is an integer.

(a) Write down all the possible values of n.

....

(2)

$3x + 5 > 16$

x is an integer.

(b) Find the smallest value of x.

....

(3)

(Total for Question is 5 marks)