Year 10 Higher

Half Term 1

Name_____

Class_____

Teacher_____

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Vocabulary

Unit 1	**Percentages**
Percent	For every 100
Original	What we had at the start
Interest	Money paid at a particular rate
Simple interest	Interest that is calculated as a percentage of the original amount.
Compound interest	Interest that is calculated on both the original amount and any interest has already been earned.
Decay	Getting smaller over time
Unit 2	
Surface Area	The total area of all the faces of a 3d shape
Pyramid	A 3d shapes with a base and sloping sides that meet at a point
Cone	A circular base that has a curved sloping side that comes to an apex
Sphere	A ball- 1 smooth curved face
Volume	The space an object takes up in 3 dimensions
Hemisphere	Half of a sphere
Frustrum	
Unit 3	**Simultaneous equations**
Simultaneous	At the same time
Solve	Find the value that makes it work
Expand	To multiple out brackets
Balance	Keeping different elements equal
Forming	To shape or create
Scale	To multiply by the same factor
Substitution	Replacing a variable with a value or other expression
Intersect	Where things cross

Unit 1- Percentages	
1)Compound interest calculations(U332) Bryce takes out a loan of £750. It gains compound interest at a rate of 8% per year. How much money will Bryce owe after 6 years? Give your answer in pounds to the nearest 1p Elina opens a saving account which gathers compound interest of 3.5% per year. She puts £2100 into the account. How much money will Elina have in the account after 9 years? Give your answers in pounds to the nearest 1p How much will Elina have made in interest over the 9 years?	

2) Growth and decay(U988)

There are 38 rabbits in a park. The rabbit population grows at a rate of 14% per month.

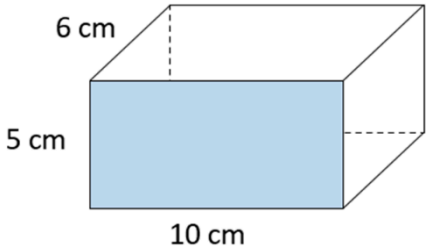
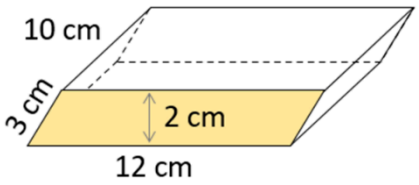
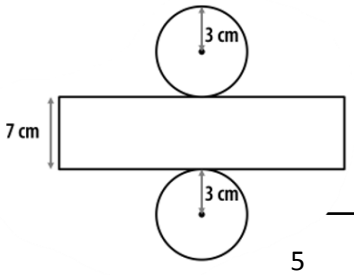
How many rabbits will be in the park after 21 months? Give your answer to the nearest integer

A village had a population of 800 people.

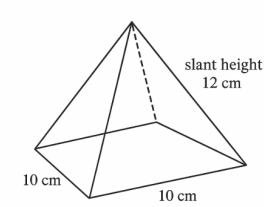
7 years later there were 1589 people living in the village.

Assuming that the population of the village increased by the same percentage each year, work out the percentage increase per year.

Give you answer to 1 decimal place.

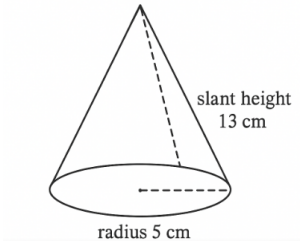
Unit 2- Surface Area and Volume	
Finding the surface area of cubes and cuboids(U929)  **Finding the surface area of prisms(U259)**  **Finding the surface area of cylinders(U464)** The net of a cylinder is shown. Use the net to work out the surface area of the cylinder. Give your answer to 1dp  	

Finding the surface area of pyramids(U871)



Calculate the total surface are of the pyramid

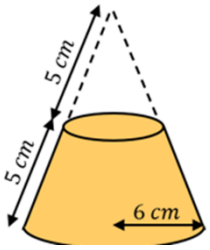
Finding the surface area of cones(U523)



Calculate the total surface area of the cone

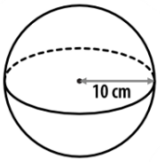
Finding the surface area of frustums(U334)

Find the curved surface area of this frustrum



Finding the surface area of spheres(U893)

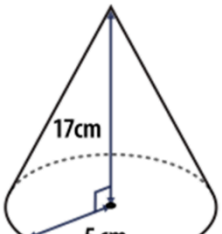
Work out the surface area of this sphere.
Give you answer to 1d.p.



Finding the volume of cones(U116)

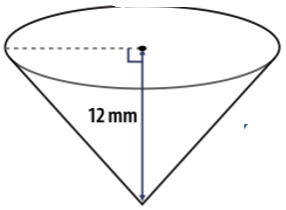
Calculate the volume of the cone below.

Give your answer to 2dp



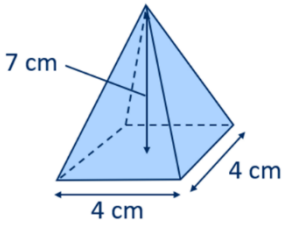
The cone below has a volume of 324π mm^3

Calculate the base radius of the cone



Finding the volume of pyramids(U484)

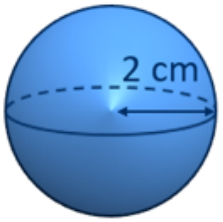
Work out the volume of the pyramid. Give you answer to 3 significant figures



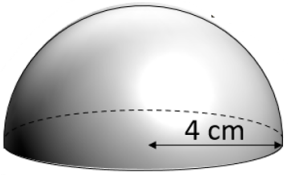
Finding the volume of spheres(U617)

Work out the volume of the sphere

Give you answer to 1 d.p



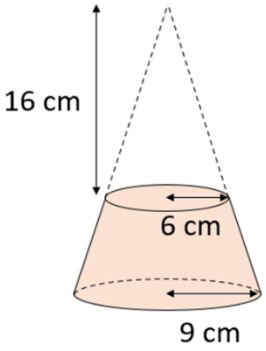
Work out the volume of the hemisphere



Finding the volume of frustums(U350)

Work out the volume of the frustum.

Give your answer to 3 significant figures.



Unit 3-Solving equations	
1.Simultaneous equations no scaling (U760) 4x + 3y =23 2x+3y=19 4x - 3y=23 2x + 3y=19 **2. Simultaneous equations scale 1 equation (U760)** 5x + 2y = 20 2x + 4y = 24	

3x + 2y =26 4x – y = 20 **<u>3. Simultaneous equations scale both equations (U760)</u>** 6x + 2y = -2 4x – 3y =29	

4. Simultaneous equations by substitution (U757)

$$y = 2x$$
$$4x + y = 30$$

$$y = 2x$$
$$4x - y = 30$$

$$x = 9y + 5$$
$$3x + 8y = 85$$

$$17x - 3y = 37$$
$$y = 4x - 9$$

5. Solving simultaneous equations which have the same subject (U757)

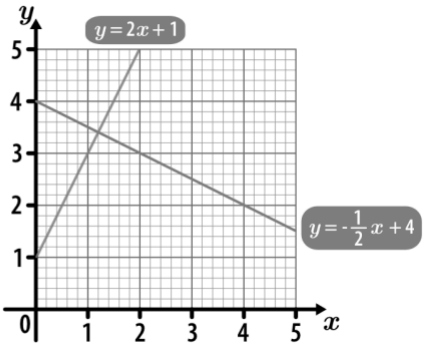
Y = 6x + 7

Y = 9x - 11

6. Solve simultanequs equations graphically (U836)

Y = 2x + 1

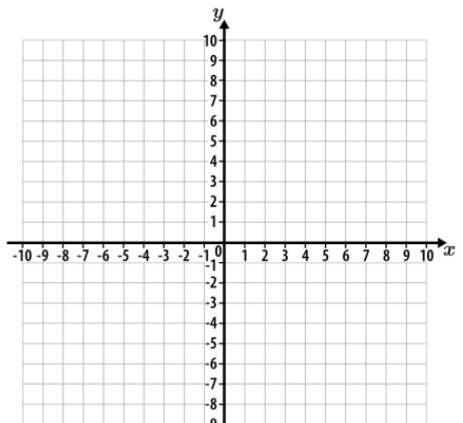
$y = -\frac{1}{2}x + 4$



Solve the simultaneous equations below.

Y = 2x + 8

$y = -\frac{1}{3}x - 6$

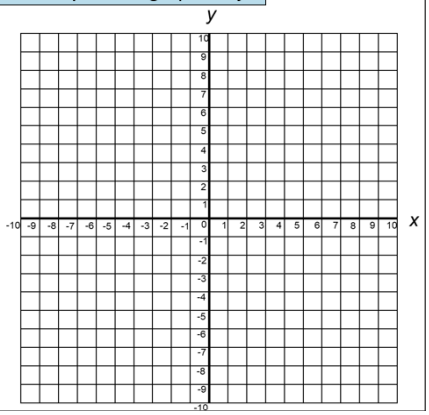


Solve the simultaneous equations graphically

$y = x^2 + x - 4$ $y = 2x - 2$

x	-2	-1	0	1	2
y					

x	-4	-3	-2	-1	0	1	2	3
y								



7. Forming and solving Simultaneous equations (U137)

The cost of 4 notesbooks and 1 dictionary is £18
The cost of 5 notebooks and 1 dictionary is £21

By writing and solvin a pair of simultaneous equations work out the cost of a notebook and a dictionary.

The cost of 6.5kg if raisins and 3kg of granola is £38.10
The cost of 9kg of raisins and 5kg if granola is £55.80.
Work out the cost of 1kg of raisins and the cost of 1kg of

grapes.	