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Mathematics Department

Homework Pack

Year 8 Module 6

Higher

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Name

Class Teacher

Name

Algebra(1)

$\frac{\dots}{25} \times 100 = \dots\%$

1. Simplify the following expressions

a. $4a + 3a - a$ [1]

b. $3a + 2b + 2a - 5b$ [2]

2. $a = 3$ $b = 5$ $c = 6$ By substituting find the values of the following expressions

a. $a + b$ [2]

b. $3c$ [2]

c. $a^2 - b + 3c$ [2]

d. $(2c)^2$ [2]

e. ab [2]

3. Solve the following

a. $x + 7 = 11$ [1]

.....
.....

c. $\frac{x}{5} = -4$ [1]

.....
.....

b. $4x = 30$ [1]

.....
.....

d. $x + 6 = 4$ [1]

.....
.....

4. Solve the following

a. $2x + 7 = 19$ [2]

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.....

c. $3x - 9 = 21$ [2]

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b. $4x + 8 = 24$ [2]

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.....
.....

d. $5x + 7 = -13$ [2]

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Algebra(2)

$\frac{\dots}{30} \times 100 = \dots\%$

1. Solve the following

a. $3x + 7 = 11$ [2]

.....
.....

b. $5x - 8 = 13$ [2]

.....
.....

d. $\frac{x}{4} - 3 = 2.5$ [2]

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.....

e. $4x + 9 = 11$ [2]

.....
.....

2. Solve the following

a. $6x = 2x + 8$ [2]

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.....
.....

c. $4x - 9 = 2x + 23$ [2]

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.....
.....

b. $7x - 8 = 3x + 4$ [2]

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d. $5x + 7 = 2x - 5$ [2]

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.....
.....

3. Expand and simplify

a. $4(x - 5)$ [2]

.....
.....

b. $2x(x - 6)$ [2]

.....
.....

c. $4(x + 7) - 8$ [3]

.....
.....

d. $5(x + 6) + 2(3x + 5)$ [4]

.....
.....

4. Expand and Solve

a. $2(x + 7) = 20$ [3]

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Angles-1

$$\frac{\dots}{25} \times 100 = \dots\%$$

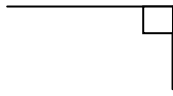
1. Write the name for each of these angles.

a.



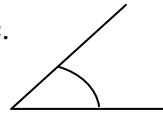
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b.



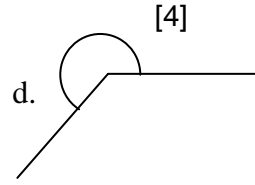
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c.



.....

d.



[4]

.....

2. Draw the following angles:

[8]

a. 20°

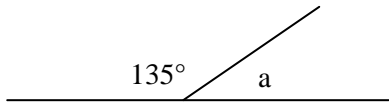
b. 145°

c. 235°

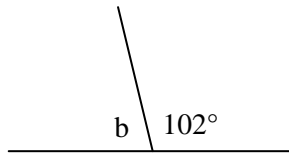
d. 352°

3. Calculate the unknown angle.

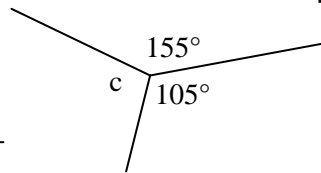
[6]



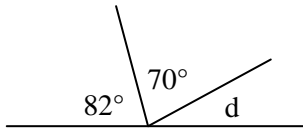
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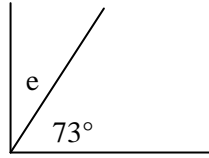
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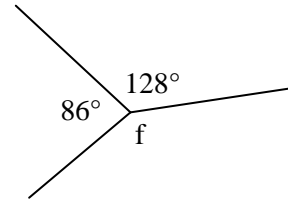
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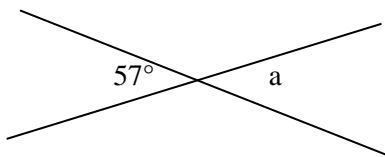
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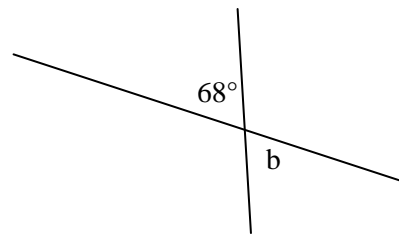
.....

4. Calculate the unknown angle.

[7]

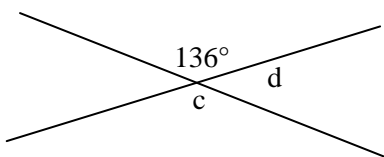


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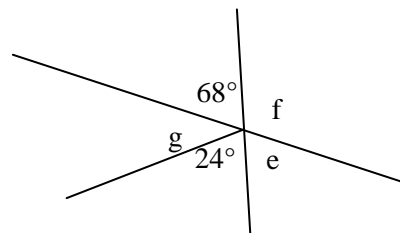
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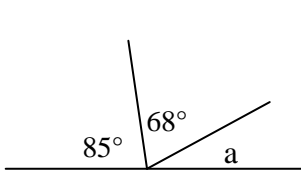
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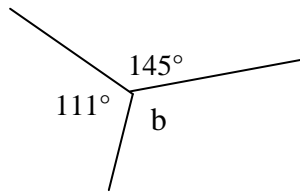
Angles - 2

$$\frac{\dots}{25} \times 100 = \dots\%$$

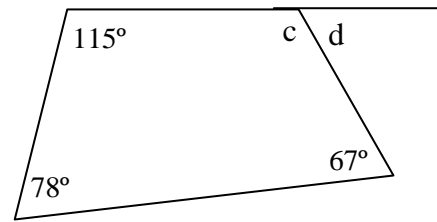
1. Calculate the unknown angle. [4]



a.....

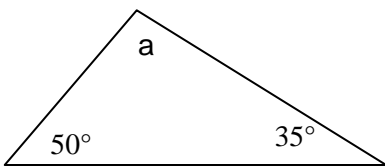


b.....

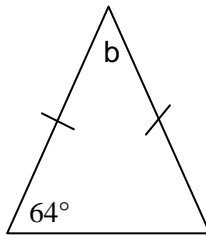


c..... d.....

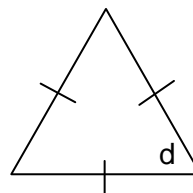
2. Calculate the unknown angle. [4]



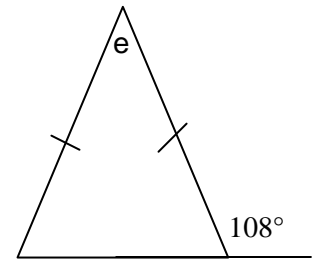
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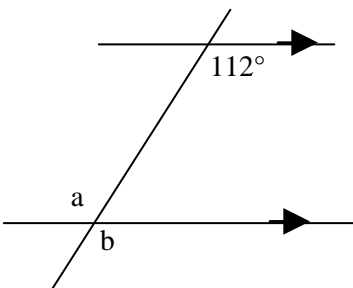
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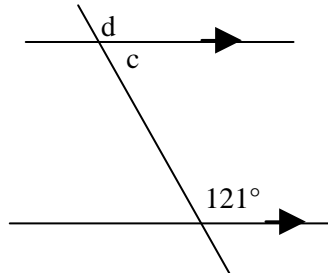


3. Calculate the unknown angle. [7]



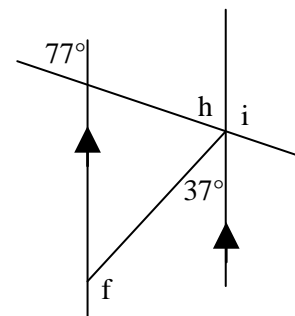
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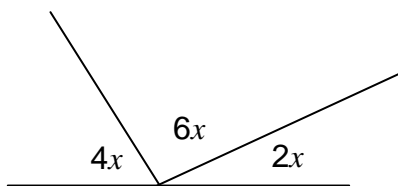
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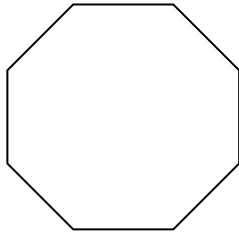
4. Calculate the value of x and hence the size of each angle. [4]



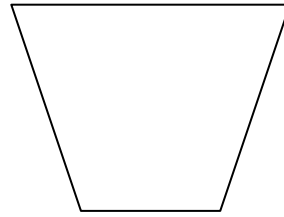
x = 4x..... 6x 2x

5. Name the following Shapes

[2]



.....



.....

6. What is the size of the external and internal of a regular polygon with 16 sides
Show your working out [3]

.....

.....

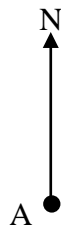
Internal External

7. You will need to draw the following diagram to scale on this page.
Draw the path of the helicopter, use a 1cm = 1km
A helicopter starts from point A.

- a. It travels 4km on a Bearing of 070° to point B. [1]
- b. It then travels from B, 6km on a Bearing of 160° to point C [1]

Write down:

- c. the **distance** of C from A [1]
- d. the **bearing** of C from A. [1]



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Estimates

$$\frac{\dots}{33} \times 100 = \dots\%$$

1. Round the following [4]

- a. 147 to the nearest 10 c. 2011 to the nearest 10
b. 2389 to the nearest 100 d. 25 672 to the nearest 100

2. Round the following to the number of decimal place shown [4]

- a. 4.353 to 1.d.p d. 0.991 to 1.d.p
b. 87.9346 to 2.d.p e. 1.0876 to 3.d.p

3. Calculate the following. Give your answers correct to 1 decimal place [8]

(Use a calculator)

- a. $\sqrt{37}$ c. 0.7^3
b. 2.3^7 d. $\sqrt[3]{200}$

4. Round the following to the given number of significant figures. [4]

- a. 2793.7 1.s.f. 2793.7 3.s.f.
b. 2793.7 2.s.f. 0.00456 2.s.f.

5. Estimate the following [1]

The distance from Holyhead to Cardiff is 205.3 miles this is roughly miles

6. Estimate the answers to these using numbers rounded to 1.s.f. [12]

Show clearly the numbers you've used

- a. 3.8×6.7
b. 73×84
c. 875×7.9
d. 0.46×378

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Reasoning -1

$$\frac{\dots}{15} \times 100 = \dots\%$$

1. Drinks are sold from a van parked outside an office block.
The following signs are shown alongside the van.

<u>OPEN</u>	
Monday	8:00 a.m. – 2:00 p.m.
Tuesday	8:00 a.m. – 2:00 p.m.
Wednesday	8:00 a.m. – 8:00 p.m.
Thursday	8:00 a.m. – 2:00 p.m.
Friday	8:00 a.m. – 2:00 p.m.
Saturday	9:00 a.m. – 1:30 p.m.
Sunday	Closed

<u>PRICES</u>			
	<u>Small</u>	<u>Medium</u>	<u>Large</u>
TEA	80p	£1.00	£1.15
COFFEE	£1.00	£1.20	£1.45
JUICE	£1.10	£1.30	£1.55

- a. On which day is the van open later than usual? [1]
- b. For how long is the van open to sell drinks on a Monday?hours. [1]
- c. How much would you have to pay altogether for a small tea and a large coffee?
..... [2]

No working out No marks

2. Gary walks 400 metres to school and 400 meters back.
How far does he walk in a school year (195 school days) ? [4]

Answer

3. In a sponsored walk 186 people walked 45 km.
What was the total distance they walked?. Show your working. [4]

Answer

4. Simon rents a car for a total of £450. The rental charges are £150 for the first day and £75 per day after that. For how many days did Simon rent the car? [3]

Answer

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Numeracy -1

$$\frac{\dots}{20} \times 100 = \dots\%$$

No working out No marks

1. Six hundred apples are placed in boxes for storage. Each box contains thirty-four apples. How many boxes can be filled and how many apples are left over? [4]

Answer

2. A group of seventeen people win £799. The money is shared equally between them. How much does each person receive? [4]

Answer

3. Calculate

a. 2^5

Answer [1]

b. $\sqrt{144} \times \sqrt{49}$

Answer [2]

c. $3^3 \times 4^3$

Answer [2]

4. The sum of two numbers is 25 and their product is 24 what the two numbers?

Answer [2]

5. The difference between two numbers is 6 and their product is 72 what the two numbers?

Answer [2]

6. Write $\frac{1}{5}$ as a decimal

Write 24% as a decimal

Write $\frac{1}{5}$, 24%, 0.18 in ascending order. [3]

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