

Maths Subject/Topic: Numeracy

Key ideas: Add, subtract, multiply and divide.

Solve 312×64 Using the Lattice Method

$312 \times 64 = 19968$

Prime Numbers

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

BASICS OF NEGATIVE NUMBERS

$+$ \times $+$ $=$ $+$
 $+$ \times $-$ $=$ $-$
 $-$ \times $+$ $=$ $-$
 $-$ \times $-$ $=$ $+$

$+$ \div $-$ $=$ $-$
 $-$ \div $+$ $=$ $-$
 $+$ \div $+$ $=$ $+$
 $-$ \div $-$ $=$ $+$

Handwritten multiplication:

$$\begin{array}{r} 756 \\ \times 32 \\ \hline 1512 \\ + 22680 \\ \hline 24192 \end{array}$$

Dot patterns for 1st, 2nd, 3rd, and 4th terms of a sequence.

$186 \div 6 =$

Handwritten division: $6 \overline{)186}$

no groups of 6 can be made (under 1), $3 \times 6 = 18$ (under 18), $1 \times 6 = 6$ (under 6).

Rounding - to the nearest 10

4832	4837	195
4830	4840	200

Significant Figures (Rounding)

Numbers can be rounded to 1, 2, 3 or more significant figures. We count the number of figures from the first non-zero digit.

Rounding to 1 s.f.

4 3325	5 7425	0.04 25
5 or bigger? No	5 or bigger? Yes	5 or bigger? No
4	6	0.04

Subject/Topic: Area & Perimeter

Key ideas:

Rectangle
 Area = length \times width = $L \times W$

Triangle
 Area = $\frac{1}{2} \times$ base \times height = $\frac{1}{2}bh$

Parallelogram
 Area = base \times height = bh

Trapezium
 Area = $\frac{1}{2}(a+b) \times$ height = $\frac{1}{2}(a+b)h$

Circle

Area of a circle = $\pi \times$ radius²

Circumference of a circle = $\pi \times$ diameter

remember that the diameter = $2 \times$ radius

Calculate the perimeter and area of this shape:

Shape 1: Rectangle with sides 8cm, 9cm, 12cm, 4cm. Handwritten: Perimeter: 42cm, Area: $12 \times 9 - 5 \times 6 = 78 \text{ cm}^2$

Shape 2: Quarter circle with radius 4cm. Handwritten: Perimeter: $4+8+4 + 2 \times \pi \times 8$

Keywords /Key Language:

- Integer:** A whole number, positive or negative.
- Negative:** A number below 0.
- Rounding:** The process of putting a number up or down to the nearest whole number or the nearest hundred, thousand
- Estimate:** Find an approximate answer to a sum by rounding to 1 significant figure
- Factor:** A number that divides into another number without remainders
- Multiple:** The times table of a number
- Prime Number:** A number that has only 2 factors – 1 and itself

Keywords /Key Language:

- Area:** The space inside a shape
- Perimeter:** The distance round the outside of a shape
- Compound Shapes:** A shape made up out of other shapes
- Circumference:** The distance round the outside of a circle
- Radius:** The distance from the centre of a circle to its circumference
- Diameter:** The distance directly across a circle going through the centre

Maths Subject/Topic: A Conversions and Scale Drawings

Key ideas:

Converting LENGTH Units
It is easiest to use a conversion look-up diagram like the one below.

$5\text{km} = ?\text{m}$ Need to $\times 1000$ $5 \times 1000 = 5000\text{m}$ ✓
 $120\text{cm} = ?\text{m}$ Need to $\div 100$ $120 \div 100 = 1.2\text{m}$ ✓

Metric → Imperial
Imperial → Metric

1 inch = 2.54 cm
To convert inches to cms: multiply by 2.54
To convert cms to inches: divide by 2.54

1 gallon = 4½ litres
To convert gallons to litres: multiply by 4.5
To convert litres to gallons: divide by 4.5

1 Km = 5/8 mile
To convert Kilometres to miles: multiply by 5/8 (0.625)
To convert miles to Kilometres: divide by 5/8 (0.625)

1 litre = 1¾ pints
To convert litres to pints: multiply by 1¾ (1.75)
To convert pints to litres: divide by 1¾ (1.75)

1 Kg = 2.2 lbs
To convert Kilograms to pounds: multiply by 2.2
To convert pounds to Kilograms: divide by 2.2

Keywords /Key Language:

Exchange rate: The value of one currency against another currency
Conversion: To change from one unit to another
Metric System: An internationally adopted decimal system of measurement
Imperial System: A traditional system of measurements and weights
Scale Drawing: A drawing that shows a real object with accurate sizes reduced or enlarged by a certain amount

Subject/Topic: Angles

Key ideas:

ACUTE ANGLE Less than 90 Degree
RIGHT ANGLE Exact 90 degree
OBTUSE ANGLE Greater than 90 degree and less than 180 degree
STRAIGHT ANGLE Exact 180 Degree
REFLEX ANGLE Greater than 180 Degree
FULL ROTATION Exact 360 Degree

Angle Rules

- straight lines: supplementary (180°)
- triangles: round a point (360°)
- quadrilaterals: angle sum = (n - 2) × 180°
- polygons: interior angle, exterior angle (add up to 360°)
- parallel lines: opposite, alternate, corresponding (Equal)

Keywords /Key Language:

Parallel Lines: Lines that keep the same distance between them at all times
Perpendicular: to meet at right angles
Polygon: A many sided shape made up of straight lines
Regular Polygon: All sides and angles are equal
Irregular Polygon: Not all sides and angles are equal
Tesselation: An arrangement of polygons in a pattern without gaps or overlapping.

Maths Subject/Topic: Numeracy Questions

For 1-5, list the first 5 multiples for the each number.

1. 6 _____
2. 8 _____
3. 12 _____
4. 15 _____
5. 50 _____

For 6-8, list all the factors for each number.

6. 12 _____
7. 20 _____
8. 30 _____

For 9-10, write 1 equation to show a way to break down each number.

9. 24 _____
10. 18 _____

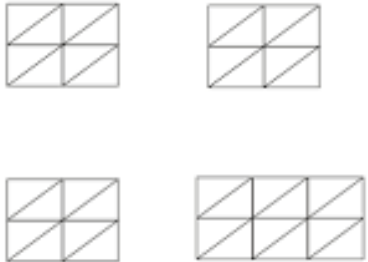
For 11, circle all the prime numbers. (4 points)

- 1 2 3 4 5 6 7 8 9 10

For 12, make a factor tree to find all the prime factors.



- a) 45×27
- b) 34×61
- c) 2.4×8.7
- d) 0.75×6.4
- e) 8.6×0.97



Calculate the following. Give your answers to 1d.p. where necessary.

- a) $234 \div 9$
- b) $3192 \div 7$
- c) $3894 \div 11$
- d) $6985 \div 6$
- e) $896 \div 21$

Round the following numbers

- a) 2489 to nearest 100
- b) 8975 to nearest 10
- c) 6.45 to 1d.p.
- d) 234.098 to 1 d.p.
- e) 23.0498 to 2 d.p.
- f) 8.8967 to 3 d.p.
- g) 12897 to 1 s.f.
- h) 4.567 to 1 s.f.

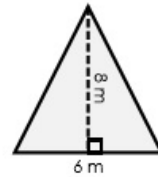
Calculate the following

- a) $-2 + 7$
- b) $7 - (-5)$
- c) $6 + (-7)$
- d) $(-11) + (-7)$
- e) $(-21) \times 3$
- f) $4 \times (-13)$
- g) $(-6) \times (-7)$
- h) $120 \div (-12)$

Subject/Topic: Area & Perimeter Questions

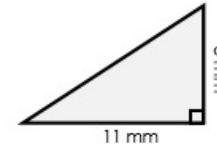
Find the area of each triangle.

a.



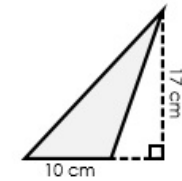
area = _____

b.



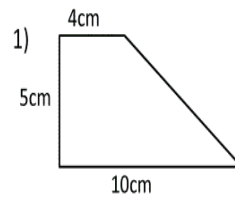
area = _____

c.



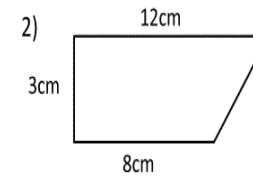
area = _____

1)



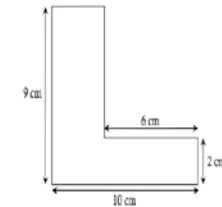
Area = _____ cm²

2)



Area = _____ cm²

3)



Area: _____ [1]
Perimeter: _____ [1]
Units [2]

Find the exact area and circumference of each circle.

1)



Radius = _____
Diameter = _____
Area = _____
Circumference = _____

2)



Radius = _____
Diameter = _____
Area = _____
Circumference = _____

3)



Radius = _____
Diameter = _____
Area = _____
Circumference = _____

Q1) About how many km are these?

- (a) 5 miles (b) 10 miles (c) 25 miles

(Q2) About how many miles are these?

- (a) 16 km (b) 32 km (c) 64 km

(Q3) Sarah's aunt lives 30 miles south of Manchester.

About how many km from Manchester does she live?

(Q4) I want to buy 150 feet of garden hose, but it is sold in metres. How many metres must I buy?

(Q5) Convert the following to centimetres.

- (a) 4 inches (b) 10 inches (c) 8 inches
 (d) 2 feet (e) 5 feet (f) 6 feet

(Q6) About how many pounds are these?

- (a) 3 kg (b) 4 kg (c) 12 kg

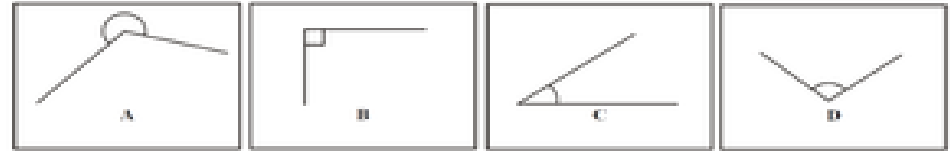
Exchange Rates

£1.00 (GBP) = €2.20 (EUR)

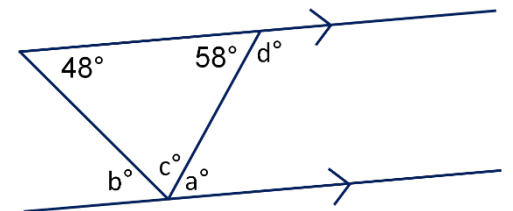
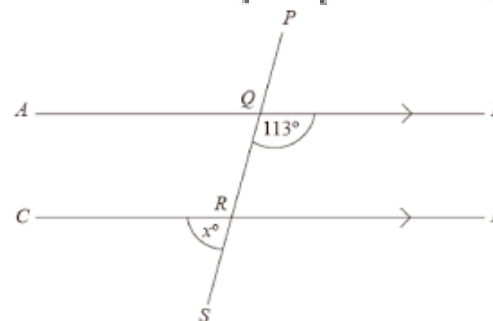
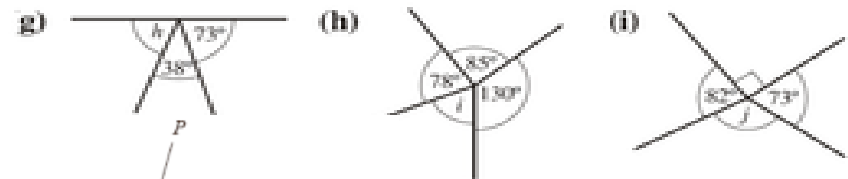
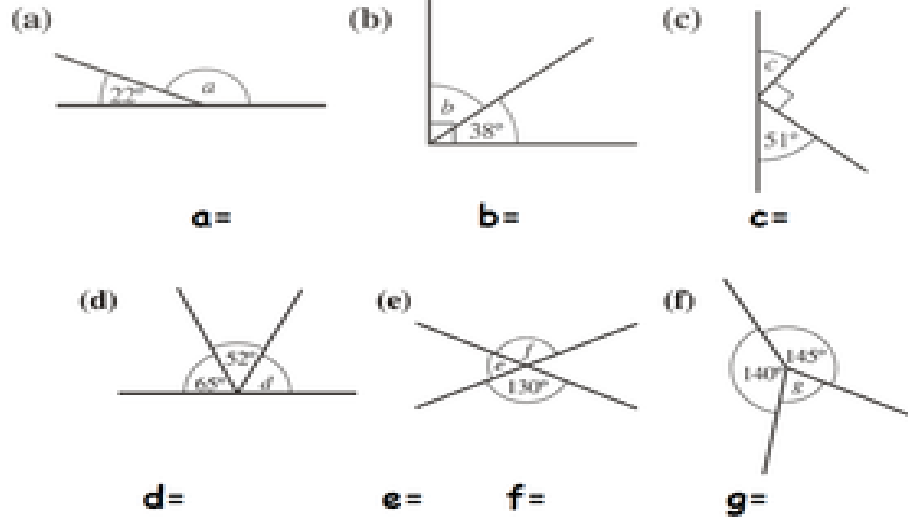
£1.00 (GBP) = \$1.40 (USD)

Item	GBP (£)	EUR (€)	USD (\$)
Ice Cream	£2		
Beach Ball	£5		
Tennis Ball	£3		
Fan	£8		
Sun Cream	£3.50		
Sunglasses	£2.50		
T-shirt	£7.50		

1. Name the angles below.



2. Find the missing angles in the questions below.



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