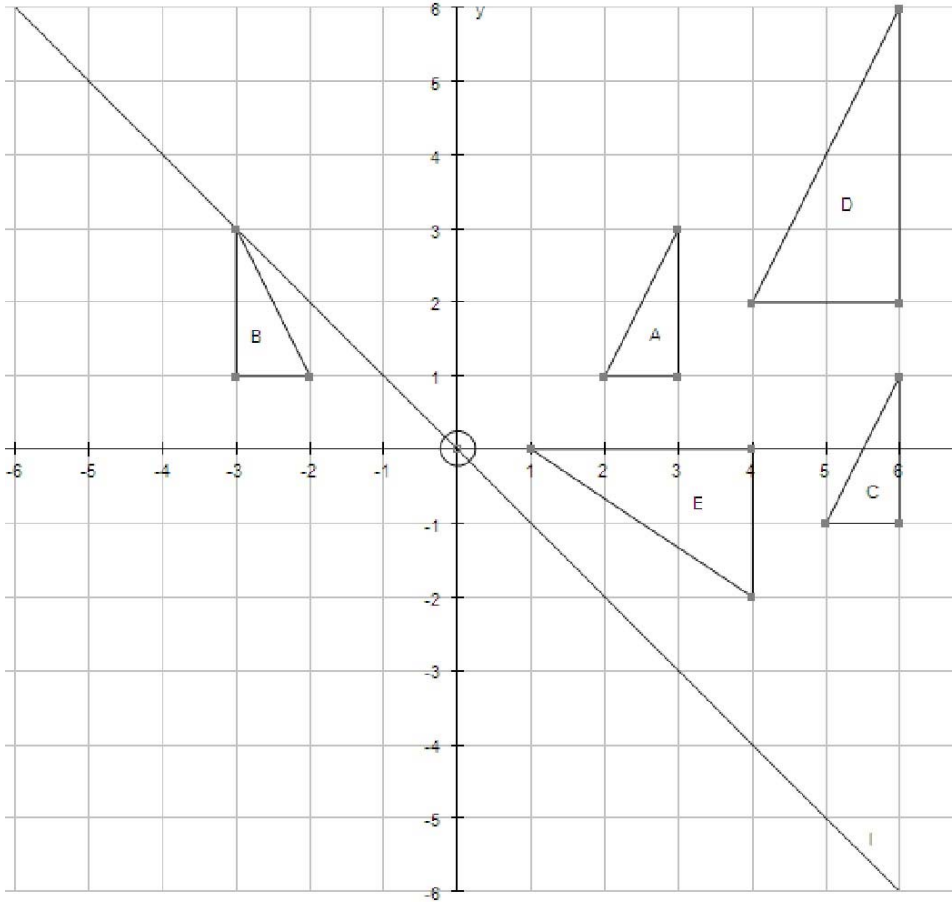


1.



- a) Describe fully the **single** transformation which maps,
 - i) triangle A onto B,

Answer [2]

- ii) triangle A onto C,

Answer [2]

- iii) triangle A onto D.

Answer [3]

- b) On the grid above, draw

- i) the rotation of B through 180° about $(-3,1)$. [2]
- ii) the reflection of E in the line l. [2]

2. $y = 120 - 5x$

- a) Find the value of y when $x=6$.

Answer $y = \dots\dots\dots$ [2]

- b) Find the value of x when $y=30$.

Answer $x = \dots\dots\dots$ [2]

- c) Make x the subject of the equation.

Answer $x = \dots\dots\dots$ [2]

- d) Find two positive values of y which make x equal to a square number.

Answer $y = \dots\dots\dots$ or $\dots\dots\dots$ [3]

3. Solve the simultaneous equations,

$$4x + 3y = 6$$

$$3x + 2y = 5$$

Answer $x = \dots\dots\dots$ and $y = \dots\dots\dots$ [4]

4.



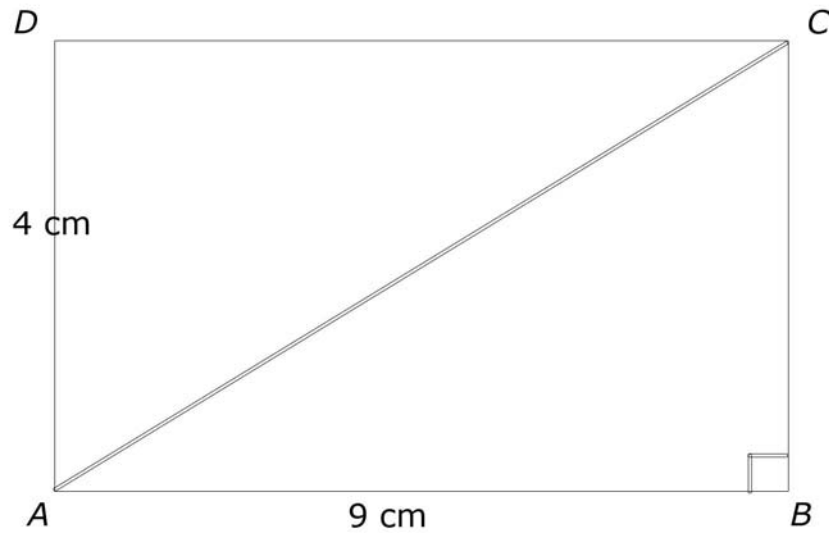
Construct, using a straight edge and compasses only, the locus of points **inside** the rectangle which are,

- a) equidistant from the lines AB and AD . [3]
- b) 4 cm from C . [1]
- c) equidistant from the points B and C . [3]

5. Write down the prime factors of 195.

Answer [2]

6.



a) Calculate the area of the rectangle $ABCD$.

Answer cm^2 [1]

b) Calculate the perimeter of the rectangle $ABCD$.

Answer cm [1]

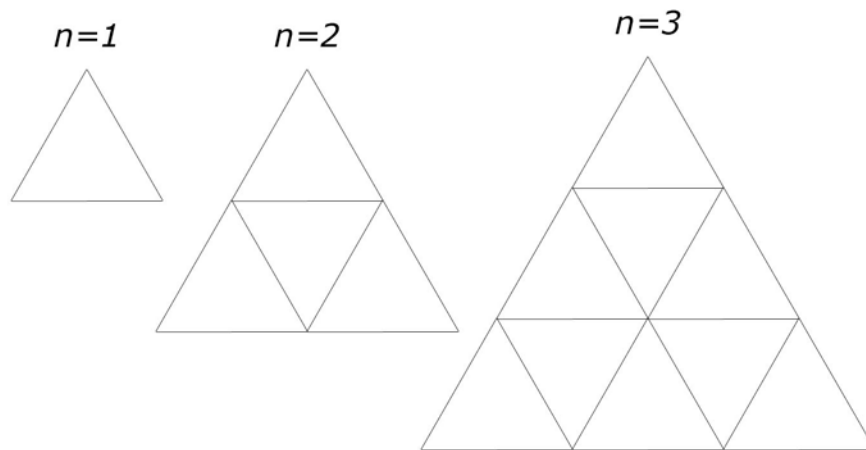
c) Calculate the length of AC .

Answer cm [2]

d) Find the angle ACB .

Answer $^\circ$ [2]

7.



a) Draw the 4th and 5th pictures in the sequence.

[2]

b) Use your diagrams to complete the table below.

n	1	2	3	4	5
<i>Number of small triangles</i>	1	4

[3]

c) Find the number of small triangles when,

i) $n = 8$,

Answer $t = \dots\dots\dots$ [1]

ii) $n = 15$.

Answer $t = \dots\dots\dots$ [1]

d) If the number of small triangles is t , find an equation linking n and t .

Answer $\dots\dots\dots$ [2]

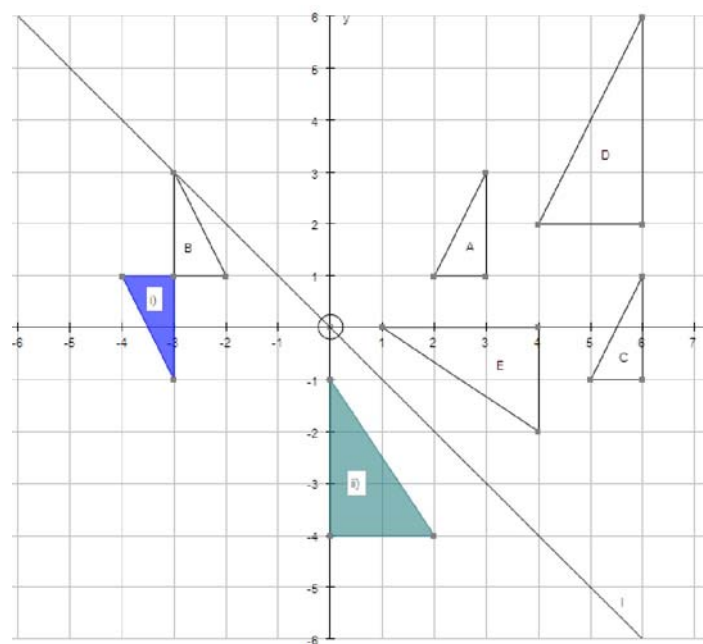
e) Find the value of n when the number of small triangles is 361.

Answer $x = \dots\dots\dots$ [2]

Answers

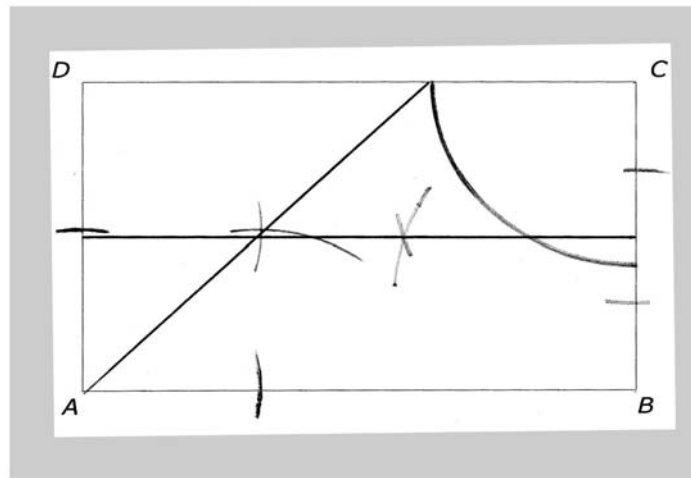
1. a) i) reflection in the y -axis or $x=0$.
 ii) translation by the vector $\begin{pmatrix} 3 \\ -2 \end{pmatrix}$.
 iii) enlargement by a scale factor of 2 with centre $(0,0)$.

b)



2. a) 90 b) 18 c) $x = \frac{120 - y}{5}$
 d) Any two of: 115, 100, 75, 40
3. $x=3, y=-2$

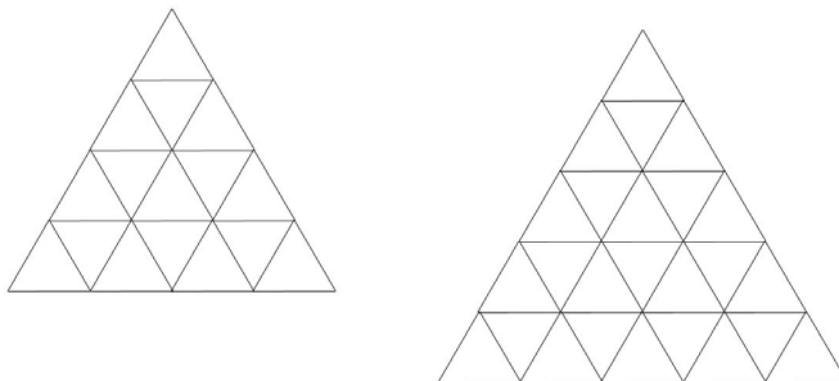
4.



5. $3 \times 5 \times 13$ or 3,5,13

6. a) 36 cm^2 b) 26 cm c) 9.85 cm d) 66°

7. a)



b)

n	1	2	3	4	5
<i>Number of small triangles</i>	1	4	9	16	25

c) i) 8 ii) 225

d) $t = n^2$

e) 19