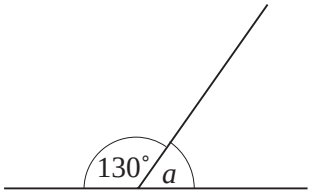
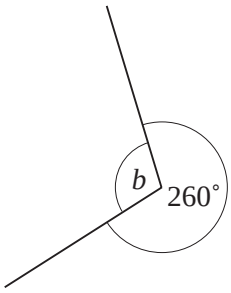
UNIT 15 *Polygons* — Revision Test 15.1 (Standard)

1. Calculate the size of each of the angles marked with a letter in the following diagrams:

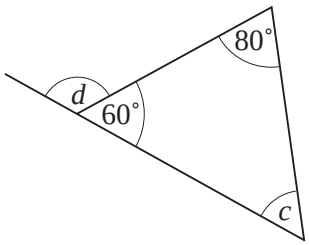
(a)



(b)



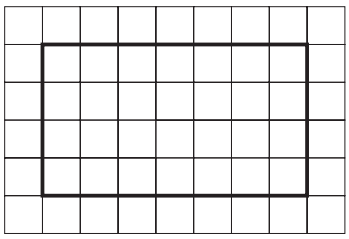
(c)



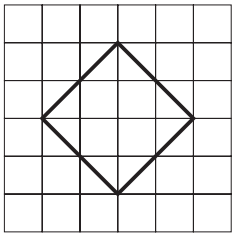
(8 marks)

2. Copy the following shapes and draw in all their lines of symmetry:

(a)



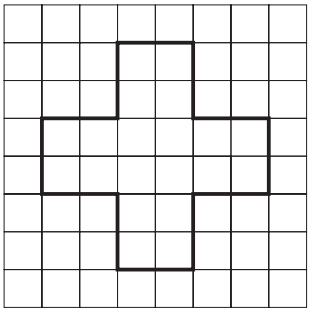
(b)



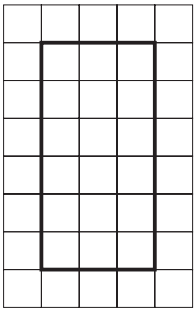
(4 marks)

3. State the order of rotational symmetry for each of the following shapes:

(a)



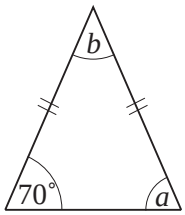
(b)



(4 marks)

Revision Test 15.1

4. The diagram shows an isosceles triangle.



   (a) Calculate the size of angle *a*.

   (b) Calculate the size of angle *b*.

(4 marks)

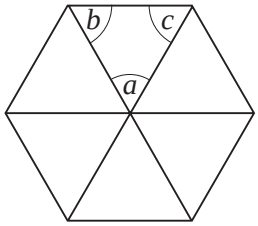
5. Draw a shape with 3 lines of symmetry, showing the lines of symmetry.

(3 marks)

6. Draw a shape with rotational symmetry of order 1.

(2 marks)

7. The diagram shows a regular hexagon split into triangles.



   (a) Calculate the size of angle *a*.

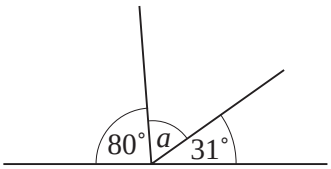
   (b) Calculate the sizes of angles *b* and *c*.

(5 marks)

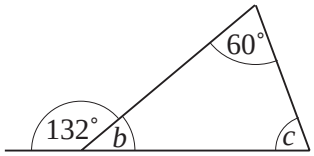
UNIT 15 *Polygons* — Revision Test 15.2 (Academic)

1. Calculate the size of each of the angles marked with a letter in the following diagrams:

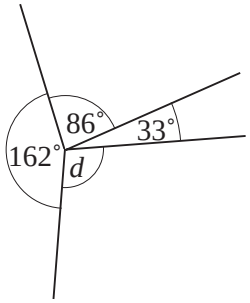
(a)



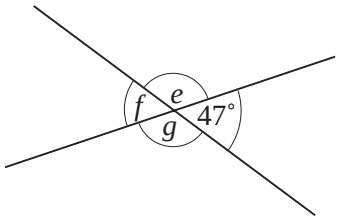
(b)



(c)



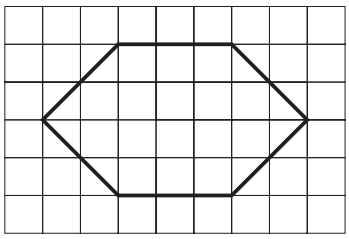
(d)



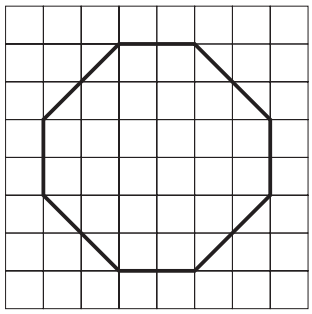
(12 marks)

2. Copy the following shapes and draw in *all* their lines of symmetry:

(a)

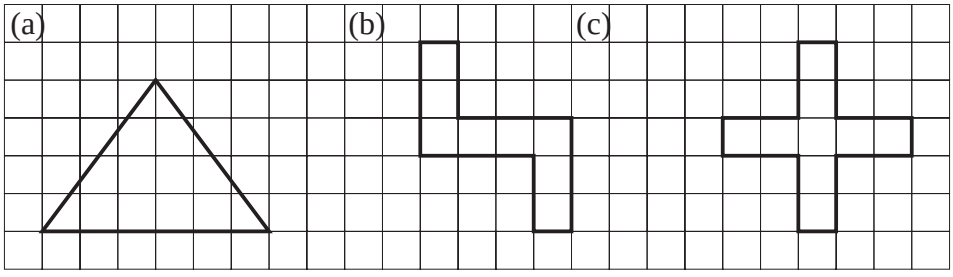


(b)



(4 marks)

3. State the order of rotational symmetry for each of the following shapes:



(3 marks)

Revision Test 15.2

4. Calculate the sizes of the interior and exterior angles of a regular octagon.

(5 marks)

5. A regular polygon has an exterior angle of $30°$. How many sides does the polygon have?

(3 marks)

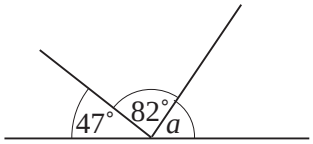
6. Draw a shape with 6 lines of symmetry, and show clearly all 6 lines.

(3 marks)

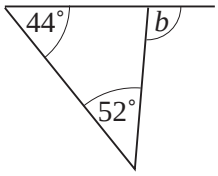
UNIT 15 *Polygons* — Revision Test 15.3 (Express)

1. Calculate the size of each of the angles marked with a letter in the following diagrams:

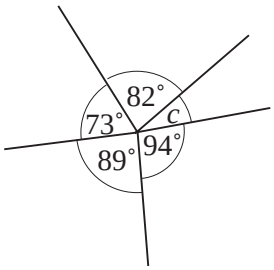
(a)



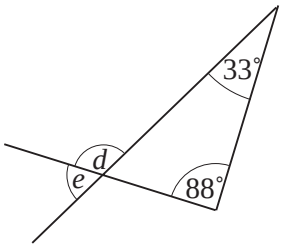
(b)



(c)



(d)



(10 marks)

2. Calculate the sizes of the interior and exterior angles of a regular polygon with 20 sides.

(3 marks)

3. A regular polygon has an exterior angle of $7.5°$. How many sides does the polygon have?

(3 marks)

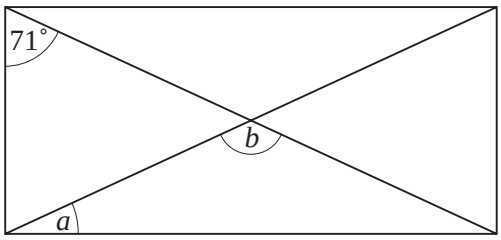
4. Draw a shape with 2 lines of symmetry and rotational symmetry of order 2.

(2 marks)

5. Draw a shape with rotational symmetry of order 4, that has no lines of symmetry.

(2 marks)

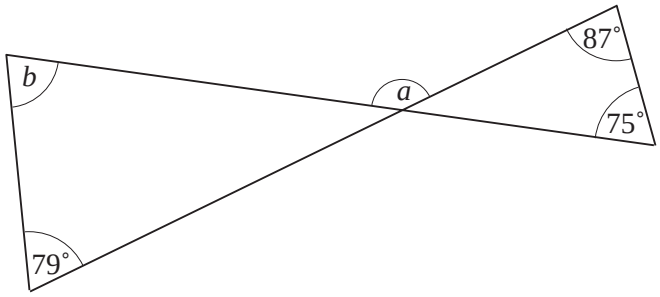
6. The following diagram shows a rectangle. Calculate the sizes of angles *a* and *b*.



(4 marks)

Revision Test 15.3 (Express)

7. Calculate the sizes of the unknown angles *a* and *b*.



(4 marks)

8. Is each of the following statements *true* or *false*?

   (a) The diagonals of a parallelogram are perpendicular.

   (b) A rhombus has 4 lines of symmetry.

(2 marks)

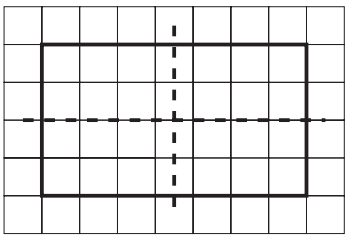
Revision Test 15.1 (Standard) Answers

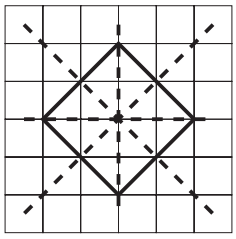
1. (a) $a = 180° - 130° = 50°$ M1 A1

   (b) $b = 360° - 260° = 100°$ M1 A1

   (c) $c = 180° - 60° - 80° = 40°$ M1 A1

   $d = 180° - 60° = 120°$ M1 A1 *(8 marks)*

2. (a)  B2

   (b)  B2 *(4 marks)*

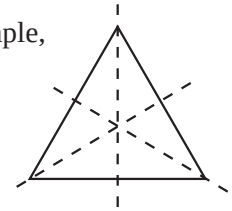
3. (a) 4 B2

   (b) 2 B2 *(4 marks)*

4. (a) $a = 70°$ B1

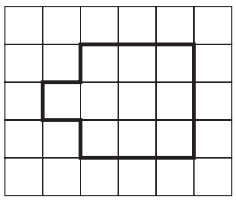
   (b) $b = 180° - 2 \times 70° = 40°$ M1 A1 A1 *(4 marks)*

5. For example,

   1 mark for each line of symmetry B3 *(3 marks)*

6. For example,

   B2 *(2 marks)*

7. (a) $a = 360° \div 6 = 60°$ M1 A1

   (b) $b = c$ and $b + c = 180° - 60° = 120°$ M1 A1

   $b = c = 60°$ A1 *(5 marks)*

(TOTAL MARKS 30)

Revision Test 15.2 (Academic) Answers

1. (a) $a = 180° - 31° - 80° = 69°$ M1 A1

   (b) $b = 180° - 132° = 48°$ M1 A1

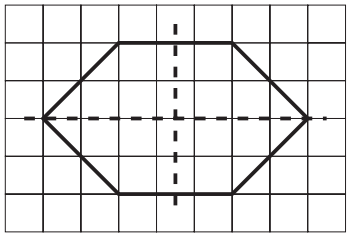
   $c = 180° - 48° - 60° = 72°$ M1 A1

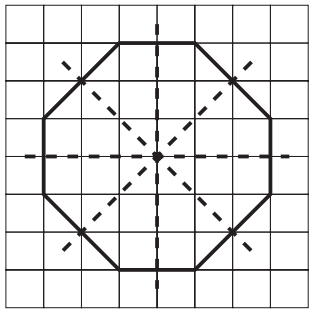
   (c) $d = 360° - 162° - 86° - 33° = 79°$ M1 A1

   (d) $e = 180° - 47° = 133°$ M1 A1

   $f = 47°$ B1

   $g = 133°$ B1 *(12 marks)*

2. (a)  B2

   (b)  B2 *(4 marks)*

3. (a) 1 B1

   (b) 2 B1

   (c) 4 B1 *(3 marks)*

4. Exterior $= \frac{360°}{8} = 45°$ M1 A1 A1

   Interior $= 180° - 45° = 135°$ M1 A1 *(5 marks)*

5. $\frac{360°}{30} = 12$ sides M1 A1 A1 *(3 marks)*

6. Regular hexagon B1

   6 lines of symmetry B2 *(3 marks)*

(TOTAL MARKS 30)

Revision Test 15.3 (Express) Answers

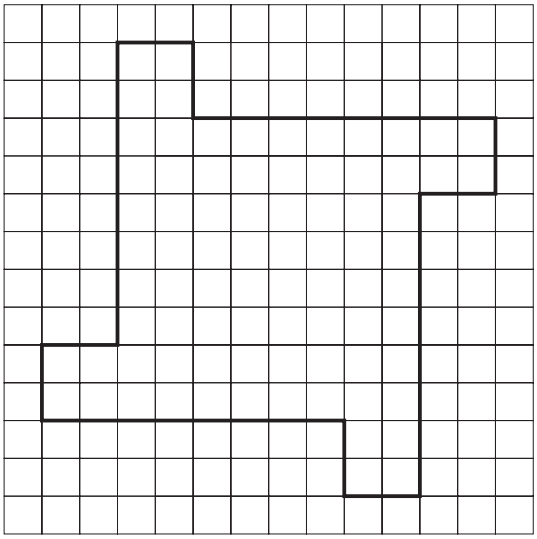
1. (a) $a = 180° - 47° - 82° = 51°$ M1 A1
   (b) $b = 44° + 52° = 96°$ M1 A1
   (c) $c = 360° - 82° - 73° - 89° - 94° = 22°$ M1 A1
   (d) $d = 33° + 88° = 121°$ M1 A1
   (e) $e = 180° - 121° = 59°$ M1 A1 *(10 marks)*

2. $\frac{360°}{20} = 18°$ M1
   Exterior $= 18°$ A1
   Interior $= 162°$ A1 *(3 marks)*

3. $\frac{360°}{7.5} = 48$ M1 A1
   $\therefore$ 48 sides A1 *(3 marks)*

4. For example, a rectangle. B2 *(2 marks)*

5. For example,



   B2 *(2 marks)*

6. $a = 90° - 71° = 19°$ M1 A1
   $b = 180° - 2 \times 19° = 142°$ M1 A1 *(4 marks)*

7. $a = 87° + 75° = 162°$ M1 A1
   $b = 162° - 79° = 83°$ M1 A1 *(4 marks)*

8. (a) *False* B1
   (b) *False* B1 *(2 marks)*

(TOTAL MARKS 30)