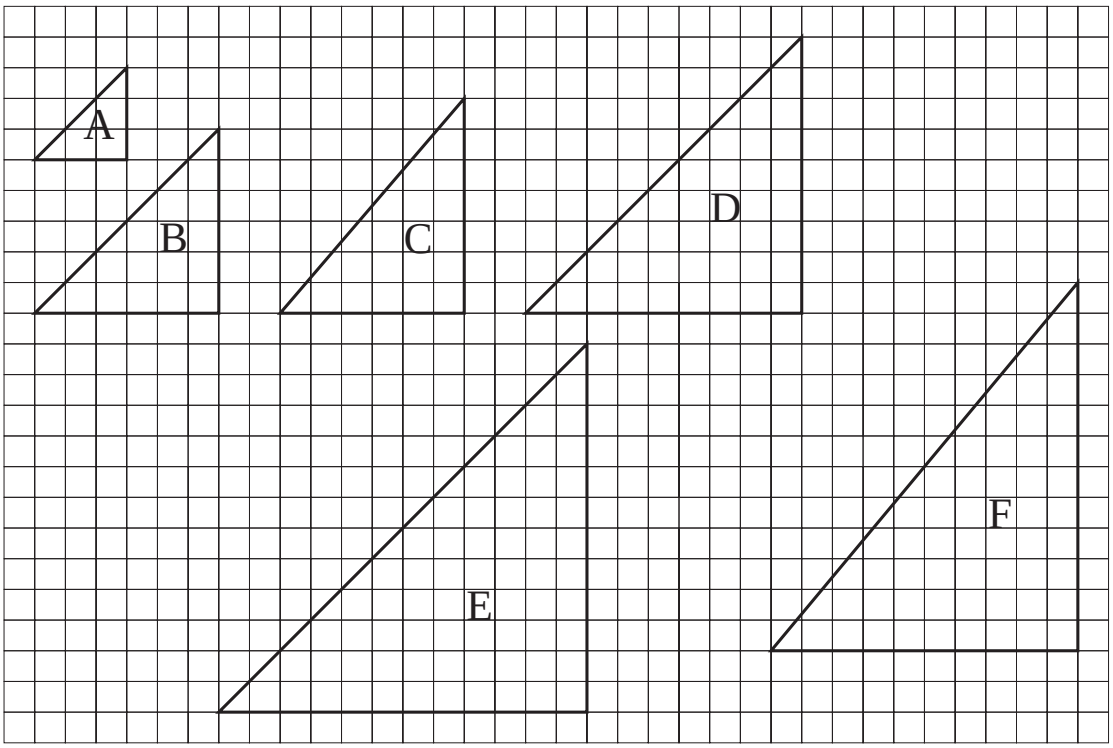
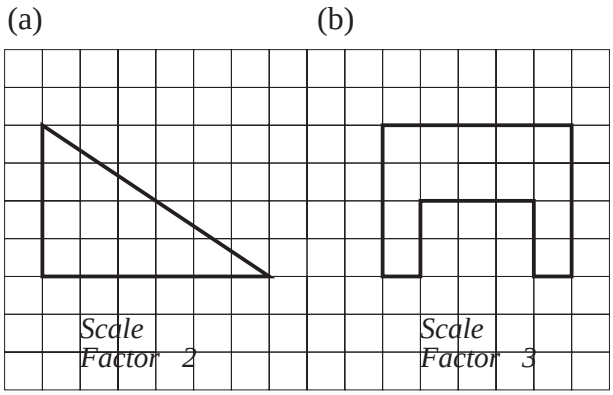
UNIT 19 *Similarity* Revision Test 19.1 (Standard)

1. Which of the following triangles are enlargements of the triangle A ?
Also, write down the scale factor for each of the triangles that is enlarged.



(6 marks)

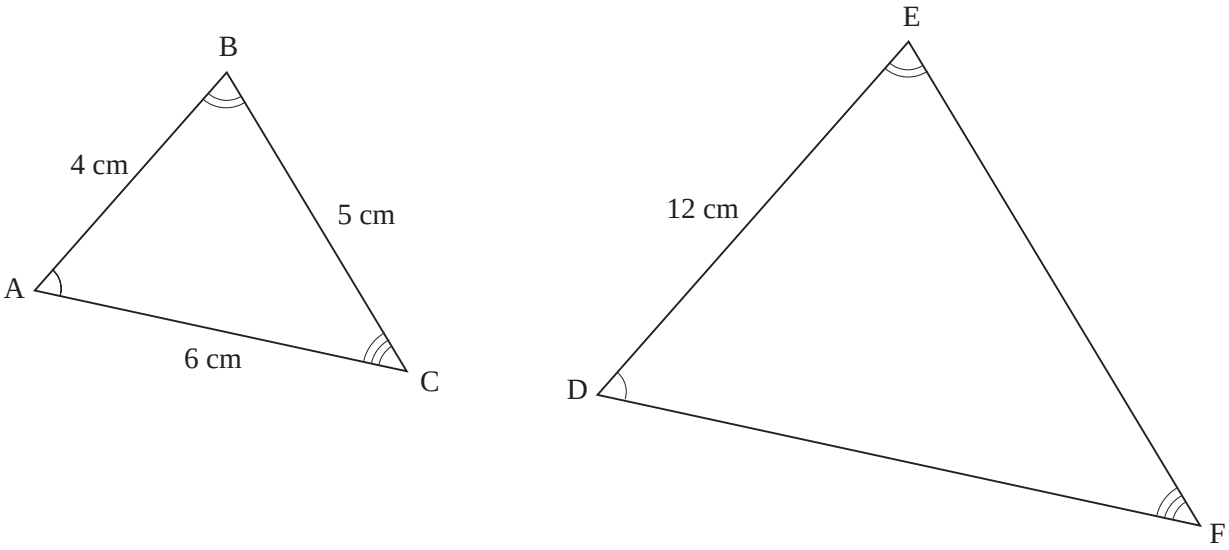
2. Draw enlargements of each of the following shapes, with the scale factor stated.



(6 marks)

Revision Test 19.1

3. The diagram shows 2 similar triangles.
Calculate the lengths of D F and E F.



(4 marks)

4. (a) Draw a rectangle with sides of lengths 3 cm and 5 cm.

(b) Calculate the area of this rectangle.

(c) The rectangle is enlarged with scale factor 2. Draw the enlarged rectangle.

(d) Calculate the area of the enlarged rectangle.

(e) How many times bigger than the original rectangle is the area of the enlarged rectangle?

(9 marks)

5. The lengths of the sides of a triangle are 16 cm, 5 cm and 19 cm. The triangle is enlarged with scale factor 5.

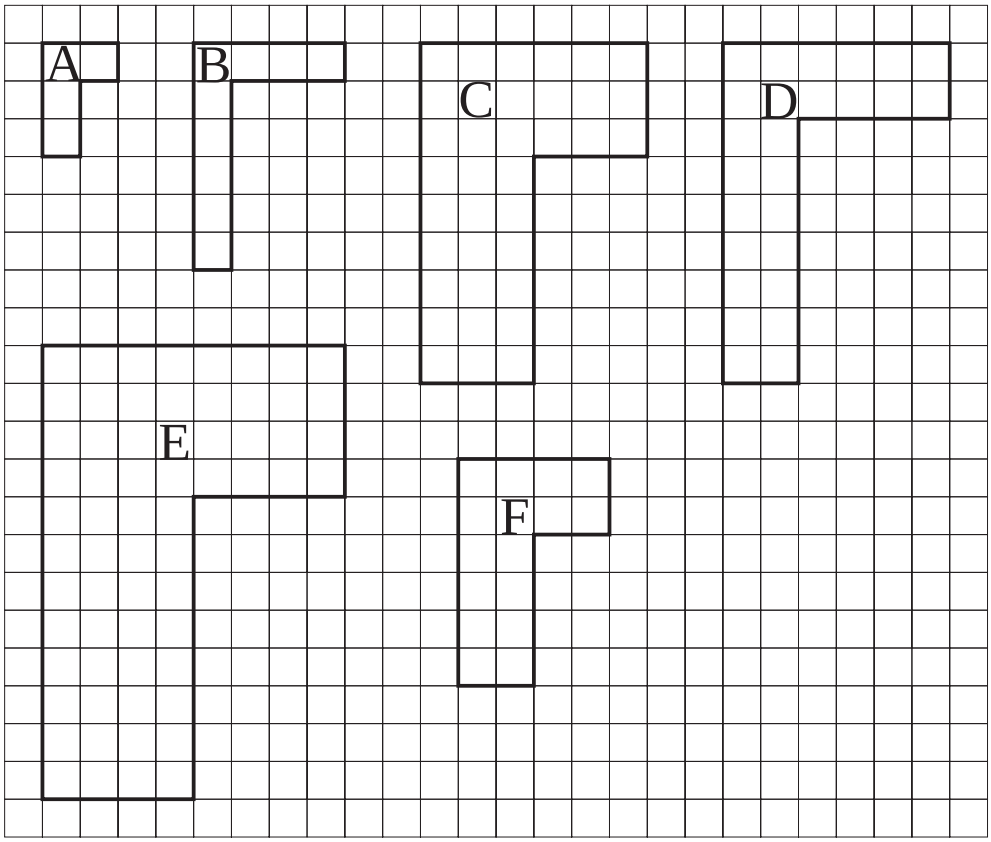
Calculate the lengths of the sides of the enlarged triangle.

(5 marks)

UNIT 19 *Similarity*

Revision Test 19.2
(Academic)

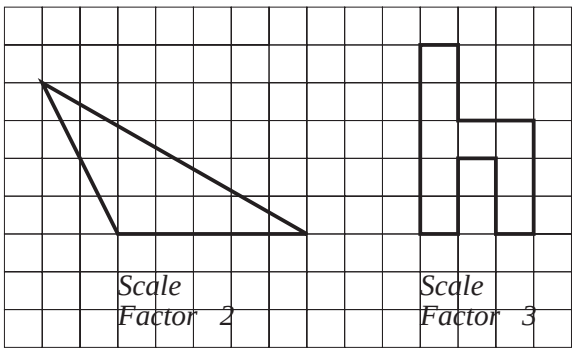
1. Which of the following shapes are enlargements of the shape A ? State the scale factor for each shape that is an enlargement.



(6 marks)

2. Draw enlargements of each of the following shapes, with the scale factor stated.

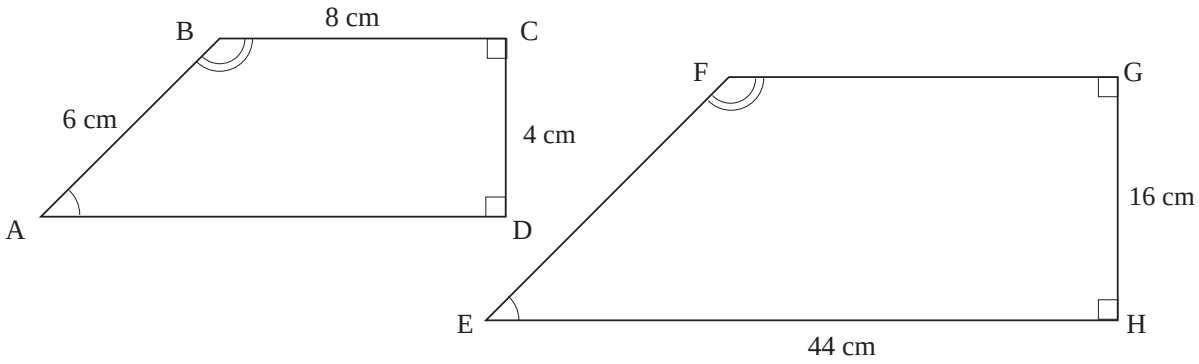
(a) (b)



(6 marks)

Revision Test 19.2

3. The diagram shows 2 similar quadrilaterals.



Calculate the length of:

(a) A D,

(b) E F,

(c) F G.

(6 marks)

4. A rectangle has area 32 cm^2. It is enlarged with scale factor 5. What is the area of the enlarged rectangle?

(3 marks)

5. A can has a volume of 240 ml. It is enlarged with a scale factor of 2. What is the volume of the enlarged can?

(3 marks)

6. A triangle has perimeter 18 cm and area 20 cm^2. The triangle is enlarged with scale factor 6. Calculate the perimeter and area of the enlarged triangle.

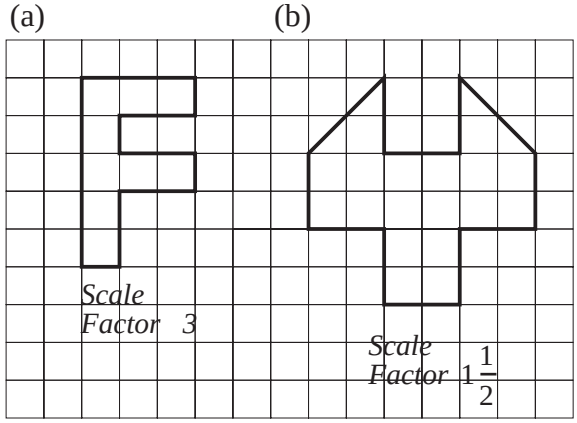
(4 marks)

7. After an enlargement the perimeter of a shape increased from 23 cm to 161 cm. Calculate the scale factor of the enlargement.

(2 marks)

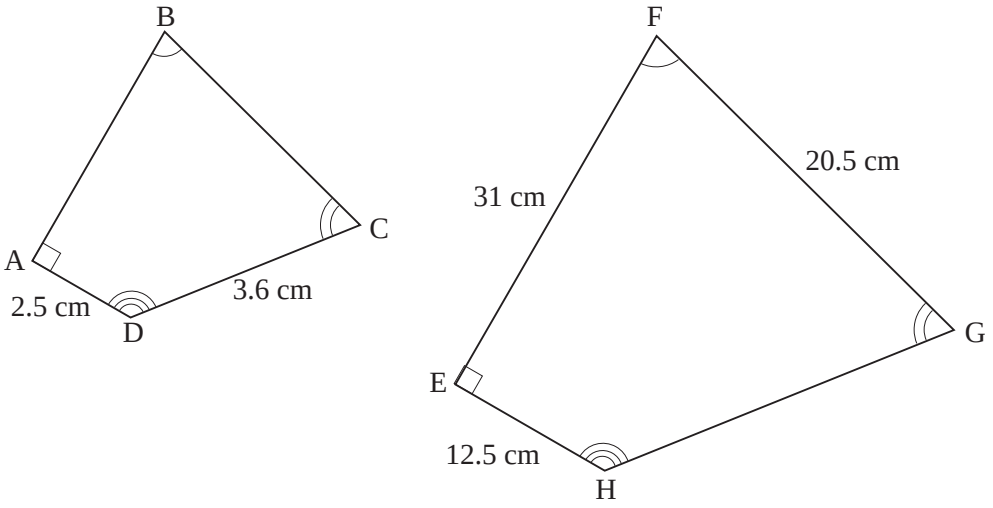
UNIT 19 *Similarity* — Revision Test 19.3 (Express)

1. Enlarge each of the following shapes, with the scale factor stated.



(6 marks)

2. The following diagram shows 2 similar quadrilaterals:



Calculate the length of:

(a) H G

(b) A B

(c) B C

(6 marks)

Revision Test 19.3

3. A triangle has perimeter 42 cm and area 19 cm^2. Calculate the perimeter and area of the triangle, if it is enlarged with scale factor 6.

(4 marks)

4. A prism has height 8 cm, surface area 82 cm^2 and volume 30 cm^3. It is enlarged to produce a prism of height 56 cm.
   Calculate:
   (a) the surface area of the enlarged prism,
   (b) the volume of the enlarged prism.

(5 marks)

5. An enlargement increases the area of a shape from 11 cm^3 to 539 cm^3.
   Calculate the scale factor of the enlargement.

(3 marks)

6. On a map with a scale of 1 : 20 000, an area of land is represented by a rectangle with an area of 3.5 cm^2. Calculate the actual area of the land in:
   (a) m^2 (b) km^2

(4 marks)

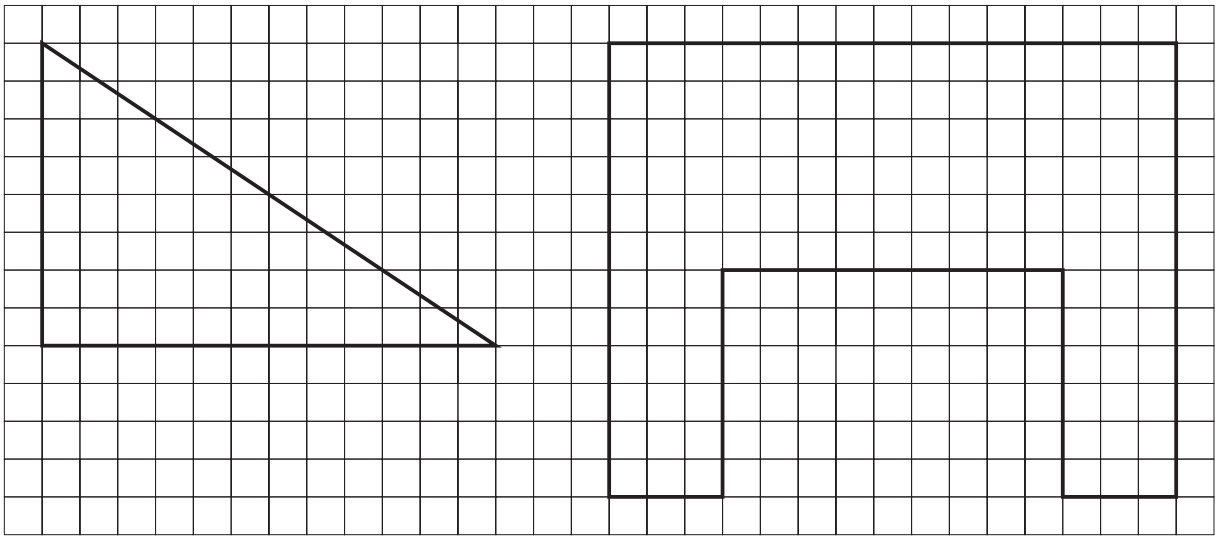
7. A tank has a volume of 18 m^3. A model of the tank is made to a scale of 1 : 20.
   Determine the volume of the model tank in cm^3.

(2 marks)

Revision Test 19.1 (Standard) Answers

1. B $\times 2$ B1 B1
   D $\times 3$ B1 B1
   E $\times 4$ B1 B1 *(6 marks)*

2. (a) (b)



B3 B3 *(6 marks)*

3. D F $= 3 \times 6$ M1
   $= 18$ cm A1
   E F $= 3 \times 5$ M1
   $= 15$ cm A1 *(4 marks)*

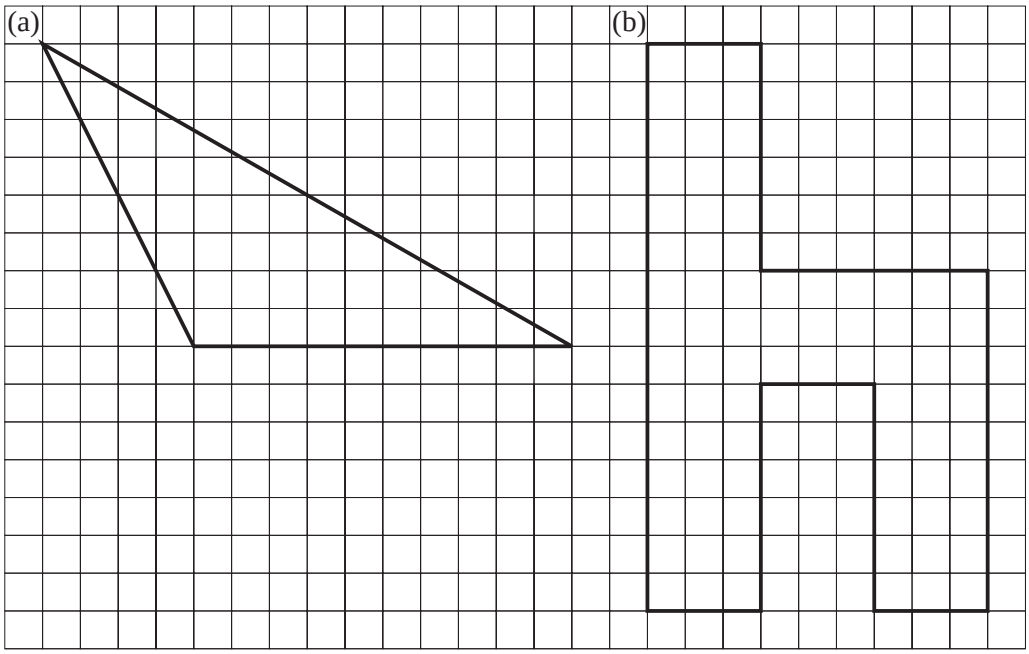
4. (a) Correct rectangle, 3 cm by 5 cm B2
   (b) Area $= 3 \times 5$ M1
   $= 15$ cm^2 A1
   (c) Correct rectangle, 6 cm by 10 cm B2
   (d) Area $= 6 \times 10$ M1
   $= 60$ cm^2 A1
   (e) 4 times B1 *(9 marks)*

5. $16 \times 5 = 80$ cm M2 A1
   $5 \times 5 = 25$ cm A1
   $19 \times 5 = 95$ cm A1 *(5 marks)*

(TOTAL MARKS 30)

Revision Test 19.2 (Academic) Answers

1. C $\times 3$ B1 B1
   E $\times 4$ B1 B1
   F $\times 2$ B1 B1 *(6 marks)*

2. 

   B3 B3 *(6 marks)*

3. (a) A D $= 44 \div 4$ M1
   $= 11$ cm A1

   (b) E F $= 6 \times 4$ M1
   $= 24$ cm A1

   (c) F G $= 8 \times 4$ M1
   $= 32$ cm A1 *(6 marks)*

4. Area $= 32 \times 5^2$ M1
   $= 32 \times 25$ A1
   $= 800$ cm^2 A1 *(3 marks)*

5. Volume $= 240 \times 2^3$ M1
   $= 240 \times 8$ A1
   $= 1920$ ml A1 *(3 marks)*

Revision Test 19.2 (Academic) Answers

6. Perimeter $= 18 \times 6$ M1
$= 108$ cm A1

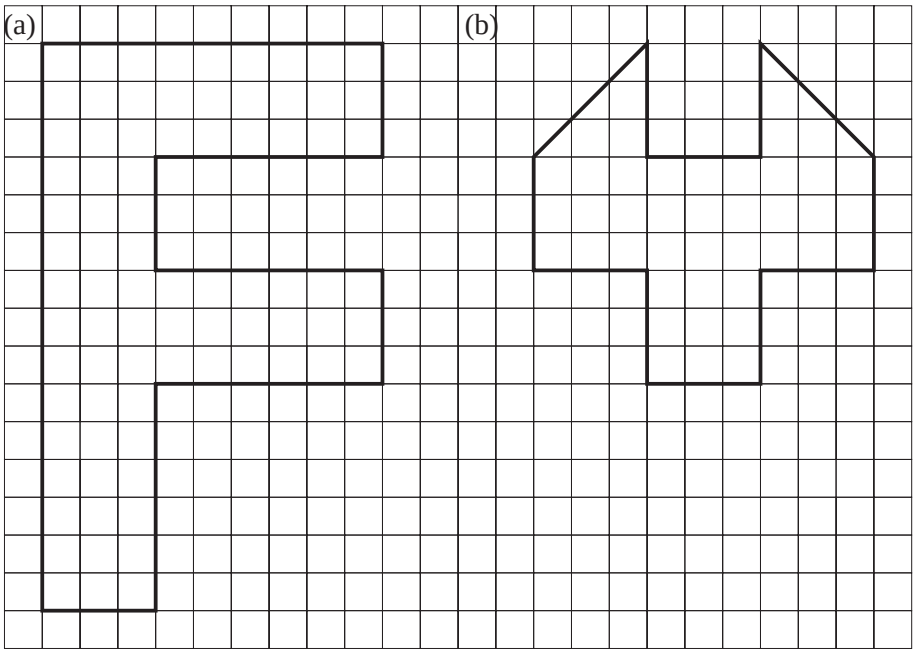
Area $= 20 \times 36$ M1
$= 720\ \text{cm}^2$ A1 *(4 marks)*

7. $161 \div 23 = 7$ M1 A1 *(2 marks)*

(TOTAL MARKS 30)

Revision Test 19.3 (Express) Answers

1. (a) (b)



B3 B3 *(6 marks)*

2. (a) H G = 3.6×5 M1
= 18 cm A1

(b) A B = $31 \div 5$ M1
= 6.2 cm A1

(c) B C = $20.5 \div 5$ M1
= 4.1 cm A1 *(6 marks)*

3. Perimeter = 42×6 M1
= 252 cm A1

Area = 19×36 M1
= 684 cm^2 A1 *(4 marks)*

4. $56 \div 8 = 7$ B1

(a) $82 \times 49 = 4018\ cm^2$ M1 A1

(b) $30 \times 343 = 10\,290\ cm^3$ M1 A1 *(5 marks)*

5. $539 \div 11 = 49$ M1

$\sqrt{49} = 7$ M1 A1 *(3 marks)*

Revision Test 19.3 (Express) Answers

6. (a) $\dfrac{3.5 \times 20\,000^2}{100^2} = 140\,000\ \text{m}^2$ M1 A1

(b) $\dfrac{140\,000}{1000^2} = 0.14\ \text{km}^2$ M1 A1 *(4 marks)*

7. $\dfrac{18 \times 100^3}{20^3} = 2250\ \text{cm}^3$ M1 A1 *(2 marks)*

(TOTAL MARKS 30)