

Year 9 Term 2 Homework

Student Name: _____	Grade: _____
Date: _____	Score: _____

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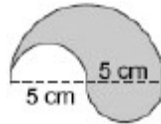
6 Year 9 Term 2 Week 6 Homework

6.1 Measurement

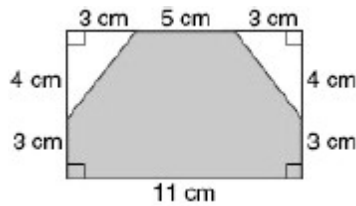
6.1.1 Composite areas

Exercise 6.1.1 Find the perimeter and shaded area of the following figures, correct to 1 decimal place:

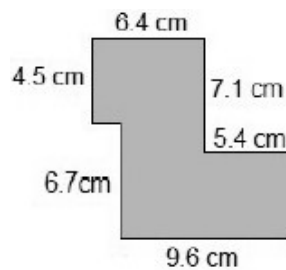
1. Perimeter _____, Area _____



2. Perimeter _____, Area _____



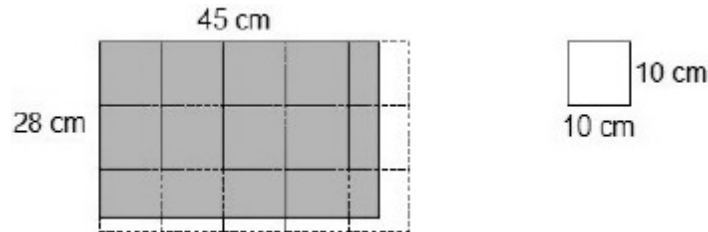
3. Perimeter _____, Area _____



6.1.2 Problems involving area

Example 6.1.1 When laying tiles, an exact number may not cover an area, or a whole number may not fit along each edge. For example, if the tiles are 10 cm by 10 cm, how many tiles would we need to cover a area of 45 cm by 28 cm?

Solution: Look at the diagram below



If the tiles are 10 cm by 10 cm each, we can see that 15 tiles are needed, presuming that the pieces of tile cut off are not good enough to be used elsewhere.

This is true even though the area is given by $28 \text{ cm} \times 45 \text{ cm} = 1260 \text{ cm}^2$ and divide this by 100 cm^2 and this would suggest that only 12.6 or 13 tiles might be needed.

Exercise 6.1.2

1. How many tiles 10 cm by 10 cm would be needed to cover an area 3.25 m by 2.17 m?

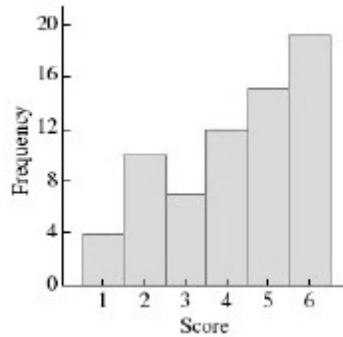
2. How many tiles 300 mm by 300 mm would be need to cover an area 2.5 m by 3.8 m?

3. Carpet comes in rolls, approximately 3.6 m wide. So when we buy 'a metre of carpet' we are getting a rectangular piece 3.6 m wide by 1 m long. How many metres of carpet must be bought to cover an area of 5.5 m by 4.8 m?

6.2 Data representation and analysis

6.2.1 Analysing Data

Exercise 6.2.1 Find the mean, mode, median and range for the data shown below:



6.2.2 Find the mean from a frequency table

Exercise 6.2.2 The scores recorded by a group of professional golfers in a round of a major championship were organised into a frequency distribution table as shown below:

<i>Score</i>	68	69	70	71	72	73	74	75	76	77	78	79	80	81
<i>Frequency</i>	3	9	5	7	9	10	9	10	4	2	2	1	1	1

1. What was the modal score?

2. Calculate the mean score.

3. If the par for the course was 72, what percentage of the players scored:

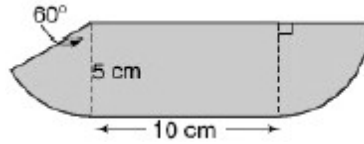
(a) under par

(b) over par

6.2.3 Miscellaneous exercises

Exercise 6.2.3 Calculate the perimeter and the shaded area of the following figures:

1. Perimeter _____, Area _____



2. Perimeter _____, Area _____

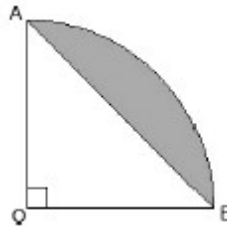


Figure 1: $OA = OB = 10 \text{ cm}$

3. Perimeter _____, Area _____

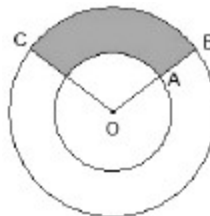


Figure 2: $OA = 6 \text{ cm}$, $OB = 10 \text{ cm}$ and $\angle BOC = 120^\circ$

Exercise 6.2.4 Jennifer was absent on the day her class sat for a maths exam. Her teacher marked the tests that night and found that the class average was 72% for the 29 students who sat for the exam. Jennifer returned to school the next day on the class and scored 66% on the test. (correct to 1 decimal place)

1. What effect will her mark have on the class average? Why?

2. Calculate the new average, correct to 1 decimal place.

3. The teacher decided that Joe's mark of 18% was an outlier. She decided to work out the mean again by taking this score out of the calculation. What effect will the loss of this mark have on the class average? Why?

4. Calculate the new average, including Jennifer's mark and excluding Joe's mark.

Exercise 6.2.5 Further applications

1. The mean of a set of 19 scores is 31. When one of the scores is taken out of the set, the new mean is then 29. Find the score that was taken out.

2. The mean of a set of 11 scores is 52. After a 12th score is added to the set, the new mean is then 50. Find the 12th score.

Exercise 6.2.6 Simplify the following:

1. $\frac{8p \times 3q}{12P - 6p}$

2. $\frac{33rs - 15sr}{3r \times 2s}$

3. $\frac{k+4}{3} + \frac{k-2}{5}$

4. $\frac{2w-5}{12} + \frac{w-1}{4}$

5. $\frac{7e-1}{8} - \frac{2e-5}{3}$

Exercise 6.2.7

1. A girl cycled at b km/h for k hours. How far did she cycle?

2. A man walked for p km at q km/h. For how long did he walk?

3. A car travelled a distance of m km in n hours. At what speed was the car travelling?

Exercise 6.2.8 Simplify the following expressions:

1. $\frac{9c}{10d} \div \frac{12c^2}{25de}$

2. $\frac{2a^2}{3b^2} \times \frac{6b}{5a}$

3. $\frac{12x^2y}{25ab} \div \frac{28xy^2}{15bc}$

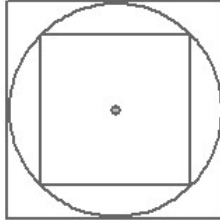
4. $\frac{3x+12}{6} \times \frac{4}{x+4}$

5. $\frac{25a^3b^2}{18a^2-27b^2} \div \frac{35a^2b^3}{12a^2-18b^2}$

6. $\frac{8bc-16c}{6ab-30a} \div \frac{4bc-8c}{3ab-15a}$

6.2.4 Math challenge**Exercise 6.2.9**

1. Consider a circle which has squares constructed to just enclose it and to fit inside it as shown. What is the ratio of the area of the larger square to the area of the smaller square?



2. Three people share a sum of money in the ration of 3 : 4 : 5. The person who receives the least amount gets \$156. Find the total amount of money shared.

3. Find the number of millilitres of water which must be added to 360 mL of orange drink containing 50% juice to make a drink containing 40% juice.

4. Simplify the following expression: $\frac{\sqrt{7}+\sqrt{5}}{\sqrt{3}+\sqrt{5}} + \frac{\sqrt{3}-\sqrt{5}}{\sqrt{7}-\sqrt{5}}$.
