- Complete all answers on lined paper. Please make sure that you write your name on your answer paper and number the questions correctly.
- Calculators may not be used.

1. Complete. *Write the answer only.*

   a) $18 - 20 =$ _____ (1)

   b) $55 - 40 \div 4 + 3 =$ _____ (1)

   c) $\sqrt{49} =$ _____ (1)

   d) $2^5 =$ _____ (1)

   e) $5 \times 2^2 + \sqrt[3]{____} = 23$ (1)

2. Calculate. *Show your working.*

   a) $684 \div 6$ (2)

   b) $(14 \times 4) + (11 \times 4) + (5 \times 4)$ (2)

   c) $2{,}5 + 1\frac{3}{4} - \frac{5}{8}$ (2)

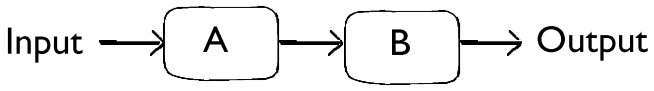
3. Rita won the Lotto. She spent $\frac{2}{3}$ of her winnings on a house. She spent $\frac{2}{3}$ of what was left on a car. Then she spent $\frac{2}{3}$ of what she had left on a holiday. Finally, she gave the last R100 000 to charity.

   Determine how much Rita won in the Lotto. *Show your working.* (3)

Assessment developed by: Brombacher and Associates

4.

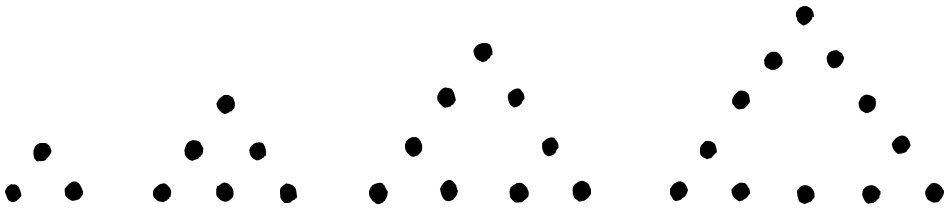
Input	1	2	3	4	5	6
Output	7	9	11	13	15	17



a) Use the table to determine the rule for A and B in the flow diagram. (2)

b) Determine the input value in the table when the output value is 61. (1)

5. Luthando makes pictures with dots. The first four pictures make a pattern.

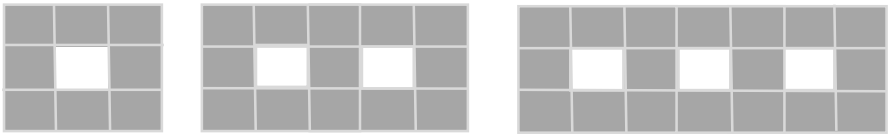


Picture 1 Picture 2 Picture 3 Picture 4

a) Determine the number of dots in picture 10. *Show your working.* (2)

b) Which picture number has 102 dots? *Explain your thinking.* (2)

6. Consider the arrangements made with grey and white tiles. The pictures make a pattern.



Picture 1 Picture 2 Picture 3

a) Which picture number has 78 grey tiles? *Explain your thinking.* (2)

b) Write a formula to determine the number of grey tiles in any picture number? Use *n* for the picture number and *m* for the number of grey tiles. (1)

7. Write a formula that means the same as the flow diagram. Use the letter *n* to stand for the output number and *m* to stand for the input number.

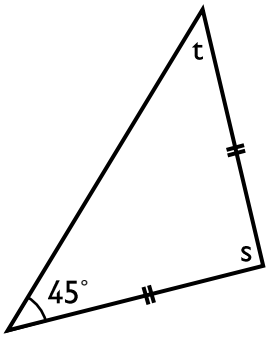
Input → $\boxed{-5}$ → $\boxed{\div 2}$ → Output (1)

8. The time a car takes to travel a certain distance depends on the average speed.

Average speed (km/h)	40	50	60	A	80
Time taken to travel 480 km (hours)	12	9,6	8	6,4	B

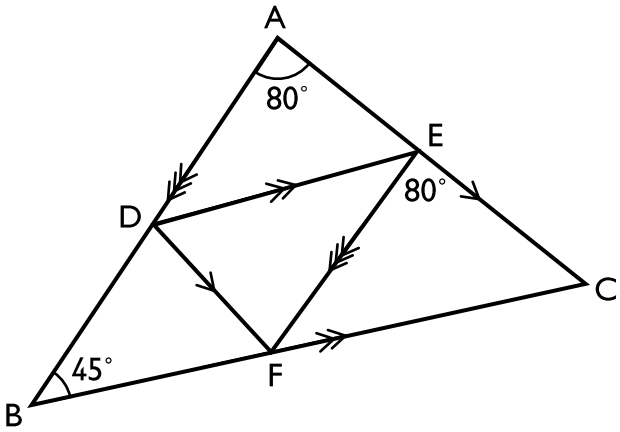
Determine the values of A and B in the table. (2)

9. Determine the size of the angles *t* and *s*. *Provide reasons why you say so.*



(4)

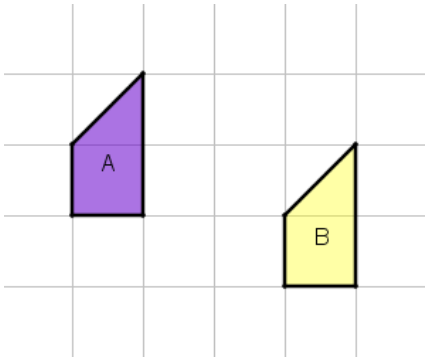
10. Study the diagram.



a) What type of quadrilateral is *ADFC*? (1)

b) Determine the size of $D\hat{E}F$. (1)

11. The diagram shows a transformation of quadrilateral A to quadrilateral B. What is the best description of this transformation?

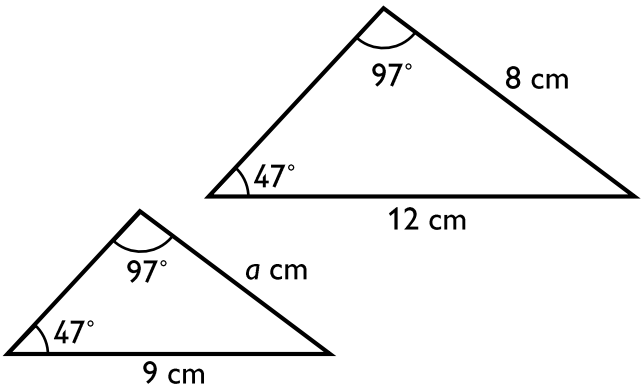


(2)

12. How many faces, edges and vertices does a pentagonal-based pyramid have? (2)

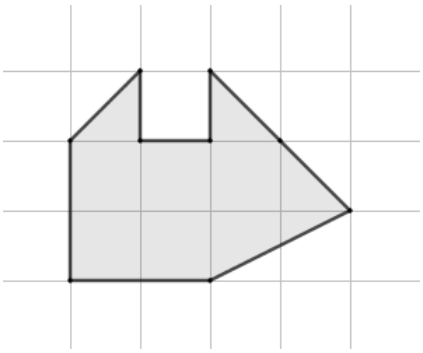
13. Triangle A has been enlarged to create triangle B.

Determine the length of *a*. *Show your working.*



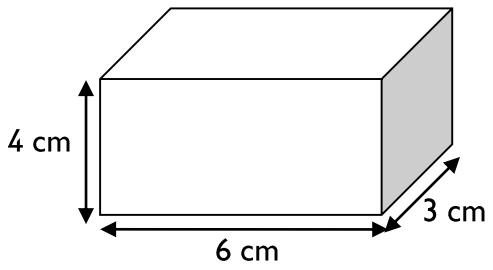
(2)

14. Determine the area of the shape.



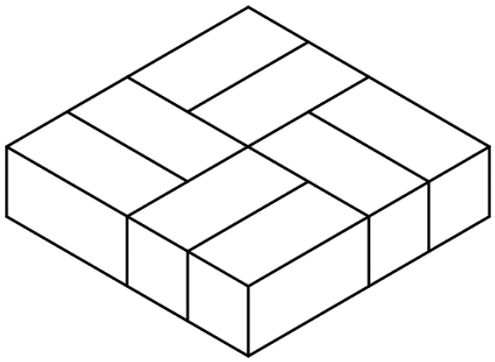
(1)

15. Calculate the volume of the prism. *Show your working.*



(2)

16. A builder wants to build a column of bricks 3 metres high to support part of a house. The arrangement of blocks in each layer is shown in the picture.



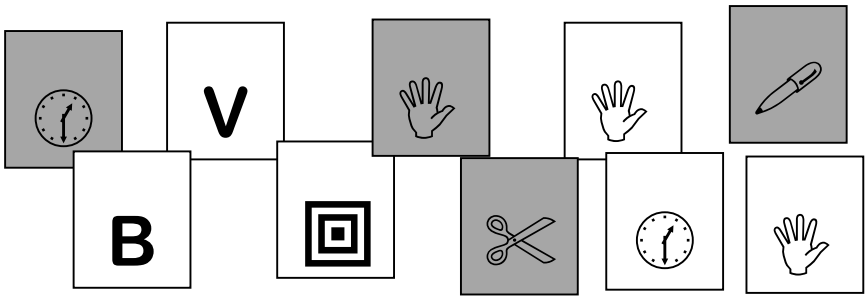
If the thickness of one layer is 0,1 metres, how many bricks will he need to use? *Show your working.* (2)

17. The mass of 7 netball players, in kilograms are recorded in the table.

53	46	41	53	54	47	50

Determine the median mass of the players. *Show your working.* (2)

18. One card is picked at random from these 10 cards.



a) What is the probability that a white card is picked? (1)

b) What is the probability that a grey card with a clock (🕐) is picked? (1)

19. Choose one fraction out of the five that is the mean of the other four fractions. *Show your working.*

$$\frac{1}{2} \; ; \; \frac{5}{9} \; ; \; \frac{7}{18} \; ; \; \frac{4}{9} \; ; \; \frac{8}{9}$$

(2)