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Education Bureau
Territory-wide System Assessment 2026
Secondary 3 Mathematics
QUESTION BOOKLET

INSTRUCTIONS

1. There are 47 questions in this paper.
2. Time allowed is 65 minutes.
3. Answer ALL questions in the separate ANSWER BOOKLET.
4. The use of HKEAA approved calculators is permitted.
5. Unless otherwise specified, numerical answers should be either exact or correct to 3 significant figures.
6. Rough work should be done on the rough work sheet provided.
7. The diagrams in this paper are not necessarily drawn to scale.

SECTION A: Choose the best answer for each question.
You should mark all your answers in the ANSWER BOOKLET.

1. $5 \times 5 \times 5 \times 5 =$

- A. 5×4 .
- B. 5555 .
- C. 5^4 .
- D. 4^5 .

2. Which of the following is a rational number ?

- A. $-\sqrt{10}$
- B. $\sqrt{2}$
- C. 3.14
- D. π

3. Mr Chan's salary for April increased by 20% compared to that for March. His salary for April was \$48 000 . Find Mr Chan's salary for March.

- A. \$38 400
- B. \$40 000
- C. \$57 600
- D. \$60 000

4. There are 840 students in a school and 350 of them are boys . Find the ratio of the number of boys to the number of girls in the school.

- A. 5 : 7
- B. 7 : 5
- C. 5 : 12
- D. 12 : 5

5. Ivy and 6 friends had a meal together. The total expense was \$ x . After using a \$100 cash coupon, they shared the remaining amount equally. How much did each person have to pay?

- A. $\$ \left(\frac{x}{7} - 100 \right)$
- B. $\$ \left(\frac{x}{7} + 100 \right)$
- C. $\$ \left(\frac{x - 100}{7} \right)$
- D. $\$ \left(\frac{x + 100}{7} \right)$

6. Which of the following points lies on the straight line $2x - 7y - 3 = 0$?

- A. (5, 1)
- B. (1, 5)
- C. (-5, -1)
- D. (-1, -5)

7. $\frac{(x^2)^3}{x} =$

- A. x^7 .
- B. x^5 .
- C. x^4 .
- D. x^3 .

8. Which of the following polynomials is in descending order of powers of x ?

- A. $4x^2 + 3x + 5$
- B. $3x + 4x^2 + 5$
- C. $5 + 4x^2 + 3x$
- D. $5 + 3x + 4x^2$

9. Which of the following is an identity ?

A. $x = 3$

B. $2(x+3) = 2x+3$

C. $(x+3)^2 = x^2+9$

D. $x+3 = 3+x$

10. It is given that $a \geq b$. Which of the following inequalities **MUST** be correct ?

A. $-2a \leq -2b$

B. $\frac{a}{2} \leq \frac{b}{2}$

C. $a+2 \leq b+2$

D. $a-2 \leq b-2$

11. The length of an object is measured as 4.0 cm (correct to 2 significant figures). Find the relative error of the measured value.

A. $\frac{1}{4}$

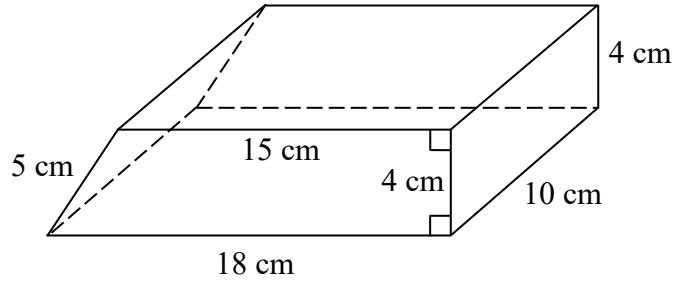
B. $\frac{1}{20}$

C. $\frac{1}{40}$

D. $\frac{1}{80}$

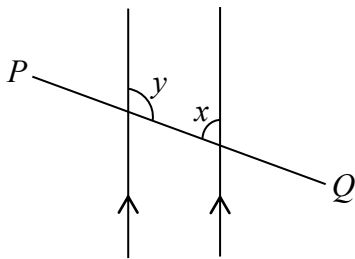
12. The figure shows a solid right prism. Its base is a trapezium. The lengths of the four sides of the trapezium are 15 cm, 4 cm, 18 cm and 5 cm respectively. The height of the prism is 10 cm. Find the total surface area of the prism.

- A. 660 cm^2
 B. 552 cm^2
 C. 486 cm^2
 D. 420 cm^2

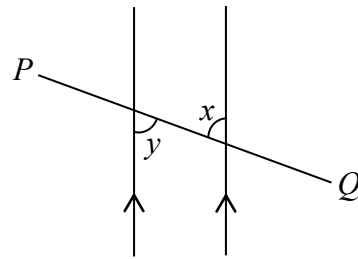


13. In each of the following figures, PQ is a straight line. Which figure shows that x and y are a pair of interior angles on the same side?

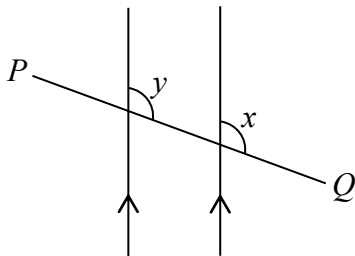
A.



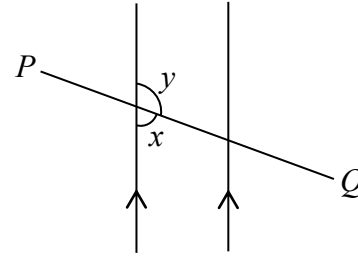
B.



C.

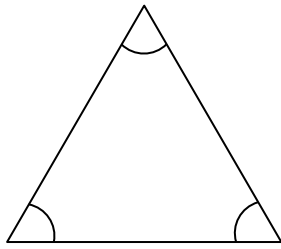


D.

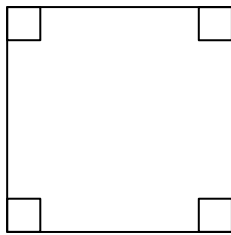


14. Which of the following figures **MUST** be a regular polygon?

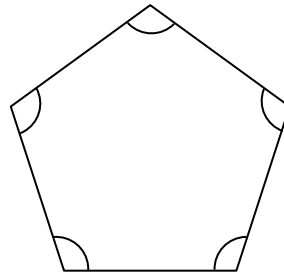
A.



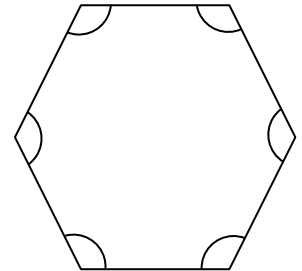
B.



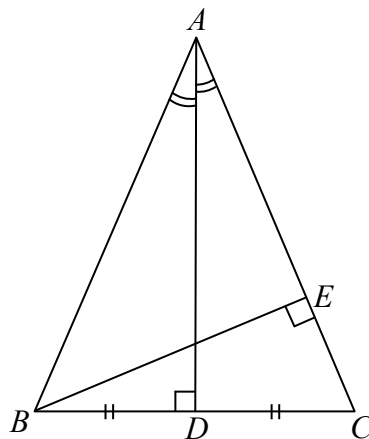
C.



D.



15. In the figure, BDC and AEC are straight lines. It is given that $AD \perp BC$, $AC \perp BE$, $BD = DC$ and $\angle BAD = \angle CAD$.

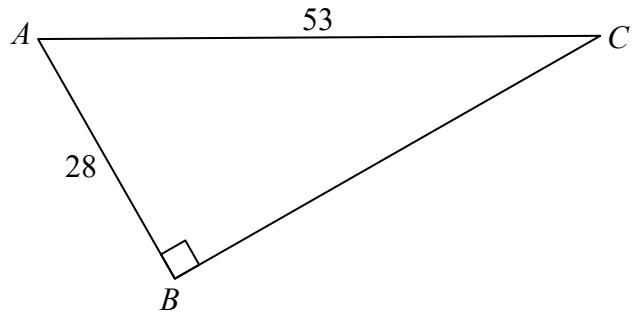


Which of the following is **NOT** correct?

- A. AD must be an angle bisector of $\triangle ABC$.
- B. AD must be a median of $\triangle ABC$.
- C. BE must be an altitude of $\triangle ABC$.
- D. BE must be a perpendicular bisector of $\triangle ABC$.

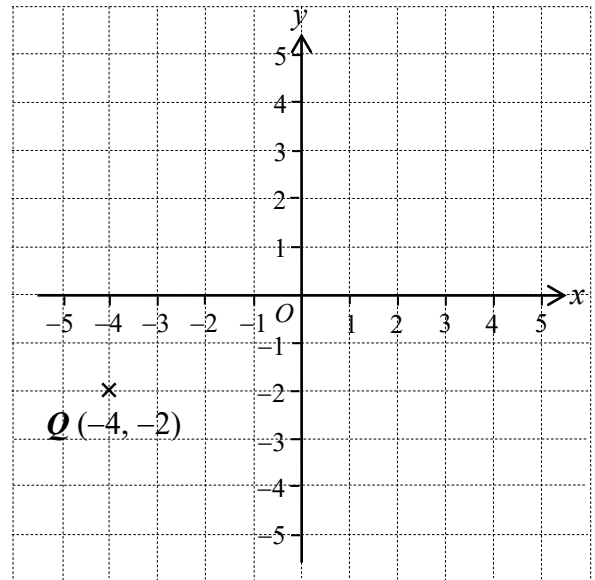
16. In the figure, $\triangle ABC$ is a right-angled triangle. If $AB = 28$ and $AC = 53$, then $BC =$

- A. $53^2 - 28^2$.
- B. $53^2 + 28^2$.
- C. $\sqrt{53^2 - 28^2}$.
- D. $\sqrt{53^2 + 28^2}$.



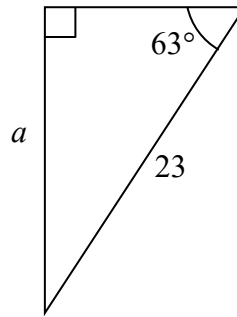
17. In the figure, $Q(-4, -2)$ is reflected about the y -axis to Q' . Find the coordinates of Q' .

- A. $(-4, 2)$
- B. $(-2, 4)$
- C. $(4, -2)$
- D. $(4, 2)$

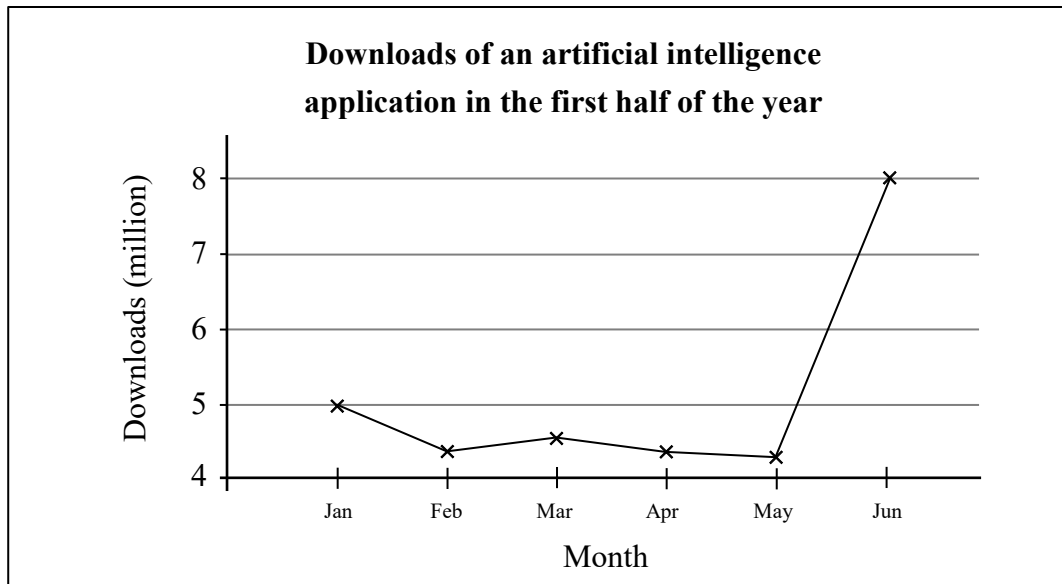


18. Referring to the figure, find a correct to 3 significant figures.

- A. 10.4
- B. 20.5
- C. 25.8
- D. 45.1



19. The diagram below shows the downloads of an artificial intelligence application in the first half of the year. Based on the diagram below, Mr Cheung believes that the downloads of the application in June is 4 times that of January.



Which of the following statements is the best reason that Mr Cheung is **misled** by the above diagram?

- A. The downloads did not increase continuously from January to June.
- B. The scale of the vertical axis in the diagram does not start from zero.
- C. There are no comparisons with the downloads of other artificial intelligence applications.
- D. There is no comparison with the downloads for the whole year.

20. The following table shows the distribution of the numbers of siblings for 200 students.

Number of siblings	0	1	2	3	4 or more
Frequency	79	67	28	19	7

According to the table above, find the relative frequency of students who have at least 1 sibling.

- A. $\frac{27}{100}$
- B. $\frac{67}{200}$
- C. $\frac{79}{200}$
- D. $\frac{121}{200}$

SECTION B: Write ALL the answers in the ANSWER BOOKLET.
Working need not be shown.

21. Calculate $\frac{10-3(6)}{-2}$.

22. Round off 369.258 to 2 significant figures.

23. In each of the following situations, determine whether the relationship between x and y is direct proportion or inverse proportion.

(i) Patrick works at a fast-food restaurant. His wage is \$60 per hour. After working for x hours, the total wage is \$ y .

(ii) The area of a rectangle is 60 cm^2 . Its length is x cm and its width is y cm .

24. Solve the equation $\frac{3x+8}{4} = 14$.

25. Find the value of 8^{-3} .

26. It is given that there are about 31 600 000 seconds in one year, use scientific notation to represent this number.

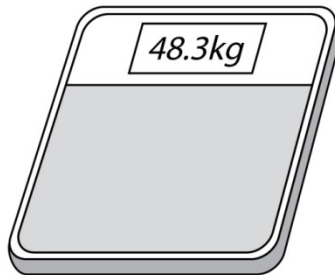
27. Simplify $(8x-7y)+(x+7y)$.

28. Factorise $3a^2+6ab-12ac$.

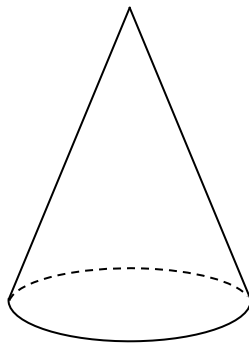
29. Expand $(3x-5)^2$.

30. Simplify $\frac{4n}{y} \times \frac{y^2}{4}$.

31. The electronic scale in the diagram below shows that Ryan’s weight is 48.3 kg (correct to the nearest 0.1 kg) . Find the maximum absolute error of the measurement.

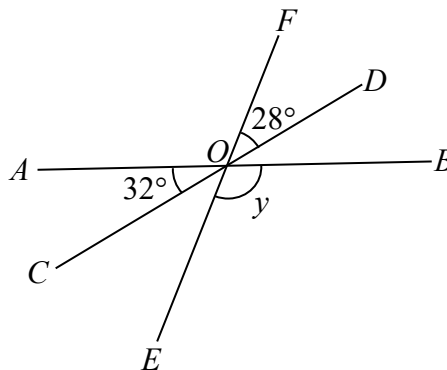


32. The figure shows the diagram of a **right circular cone** :

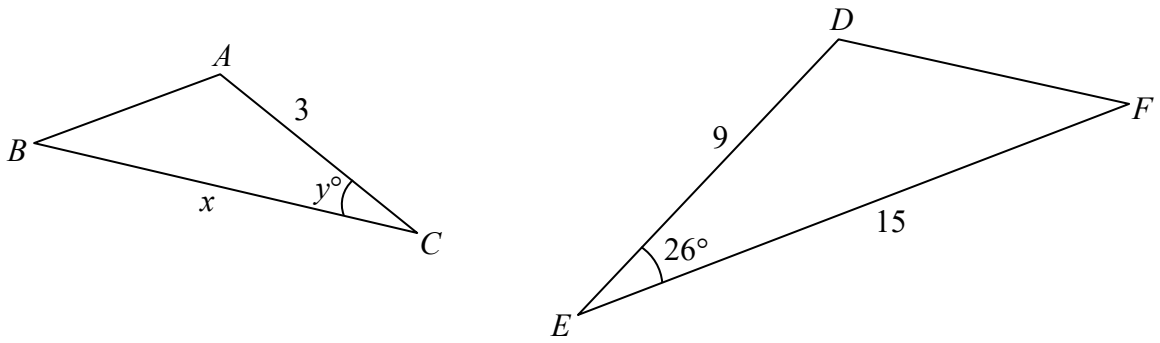


Referring to the sketch shown above, add 1 solid line and 1 dotted line to the figure provided in the **ANSWER BOOKLET** so as to form a diagram of a **right pyramid**.

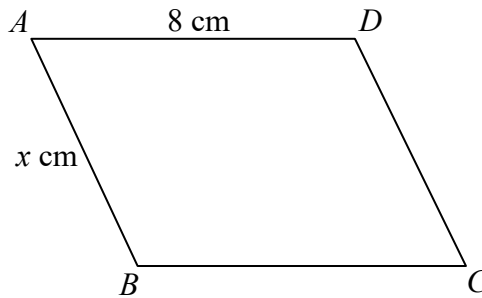
33. In the figure, AOB , COD and EOF are straight lines. $\angle AOC = 32^\circ$, $\angle DOF = 28^\circ$ and $\angle BOE = y$. Find y .



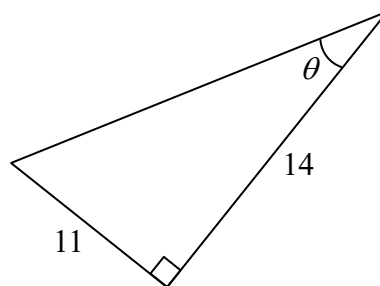
34. In the figure, $\triangle ABC \sim \triangle DFE$. Find the values of x and y .



35. In the figure, $ABCD$ is a parallelogram and its perimeter is 28 cm. $AD = 8$ cm and $AB = x$ cm. Find the value of x .



36. Referring to the figure, find θ correct to 3 significant figures.

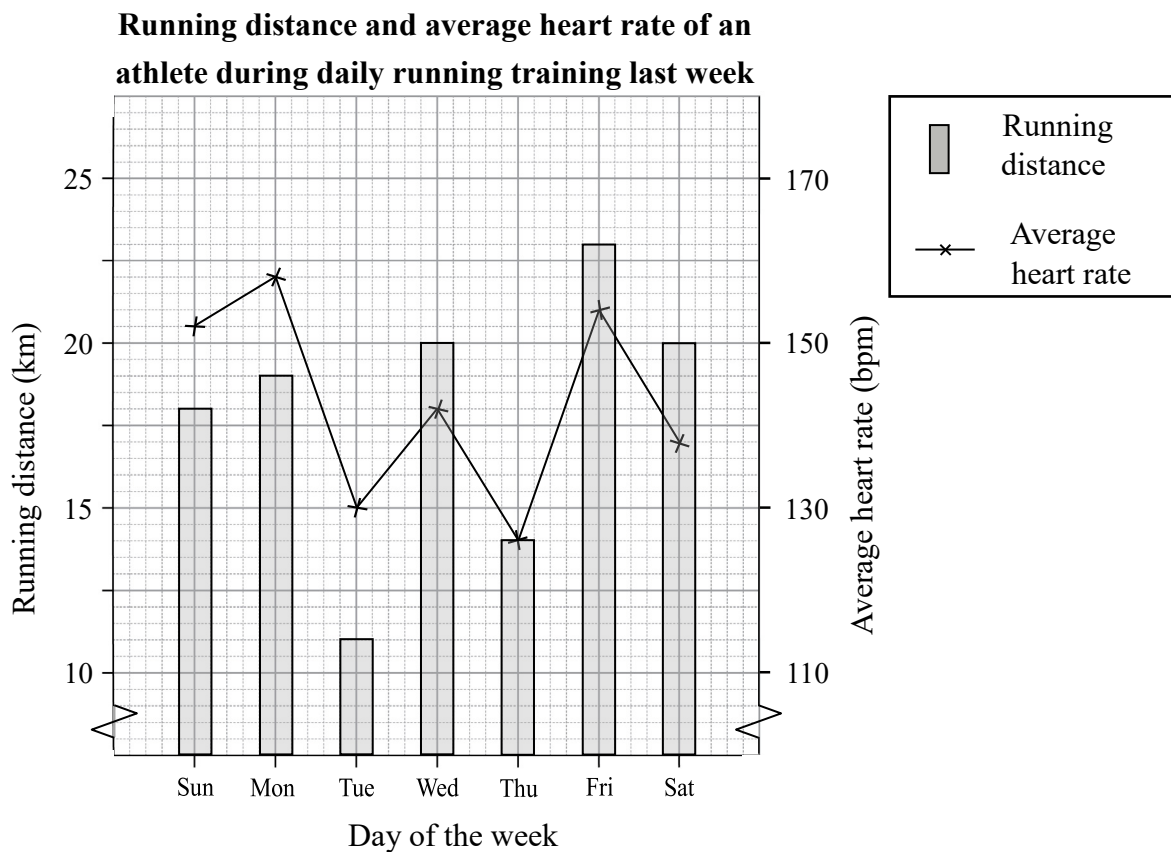


37. The following data shows the completion times (seconds) of 20 students for a mathematics challenge question.

8	15	22	13	35
38	9	16	31	35
27	11	23	38	40
12	20	16	33	26

Use the data to complete the two frequency distribution tables in the **ANSWER BOOKLET**.

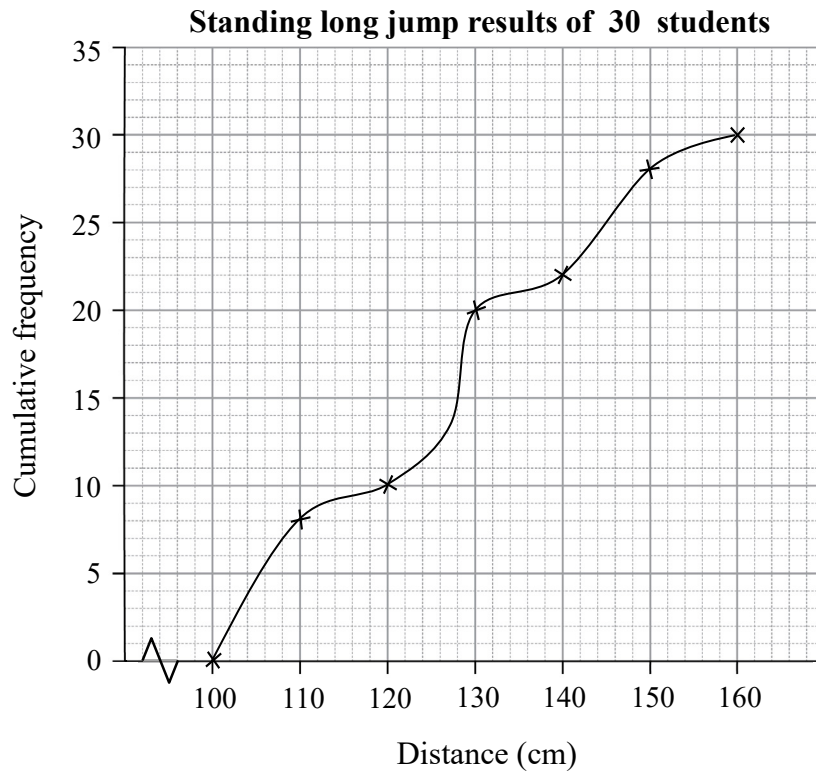
38. The diagram below shows the running distance and average heart rate of an athlete during daily running training last week.



According to the above diagram, answer the following questions.

- How many kilometres did the athlete run last week?
- If the average heart rate of the athlete during training was 150 bpm or above, the athlete was considered as performing high-intensity training. How many days did the athlete perform high-intensity training last week?

39. The cumulative frequency curve below shows the distribution of the standing long jump results of 30 students.



According to the above diagram, answer the following questions.

- (a) Find the median of the standing long jump results of 30 students.
- (b) A student with a result of less than 120 cm needs to attend the Fitness Enhancement Class. How many students in that group needed to attend the Fitness Enhancement Class?

SECTION C: All working must be clearly shown.

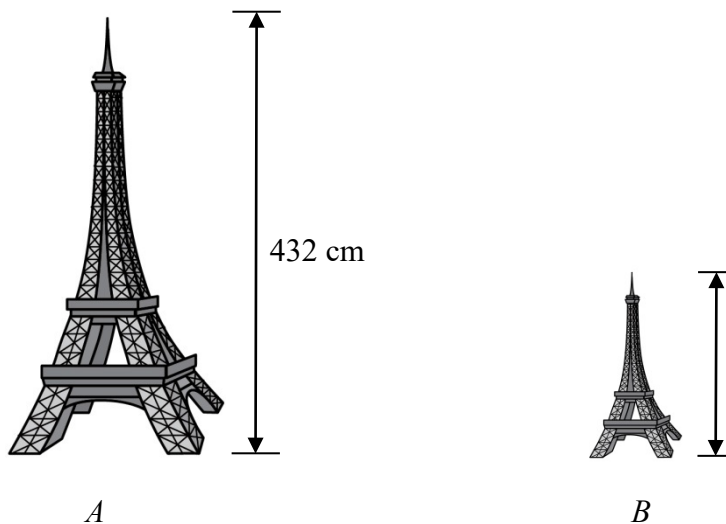
Write the mathematical expressions, answers and statements/conclusions in the spaces provided in the ANSWER BOOKLET.

40. The value of a smart phone is \$8 000 . The rate of depreciation is 15% per year. Find the value of the smart phone after 3 years.

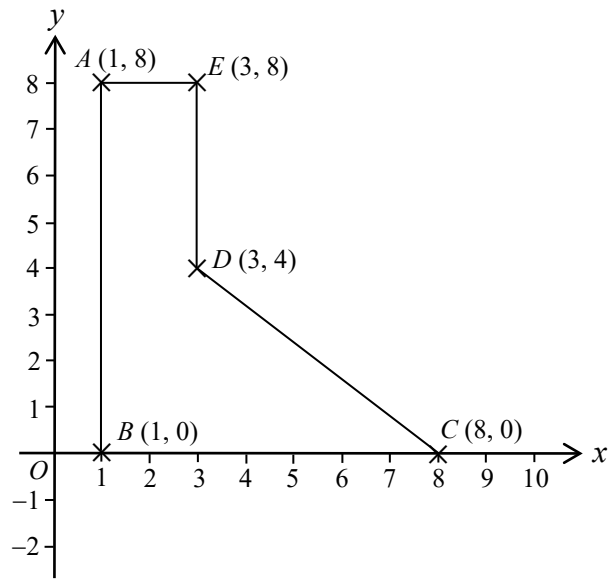
41. Miss Chan bought a bottle of orange juice and distributed it equally among 8 students. Each student got 375 mL . If the orange juice is distributed equally among 10 students, how much orange juice can each student get?

42. Solve the simultaneous equations $\begin{cases} 4x + y = 13 \\ 2x + y = 9 \end{cases}$.

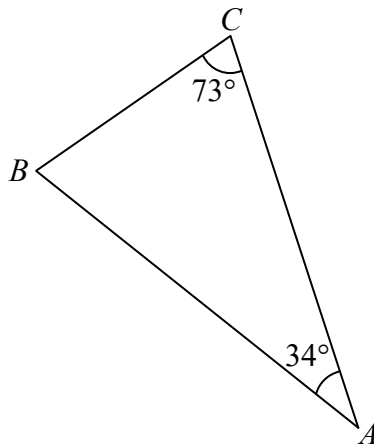
43. In the figure, A and B are similar 3-D models. The volume of A is 27 times that of B . If the height of A is 432 cm , find the height of B .



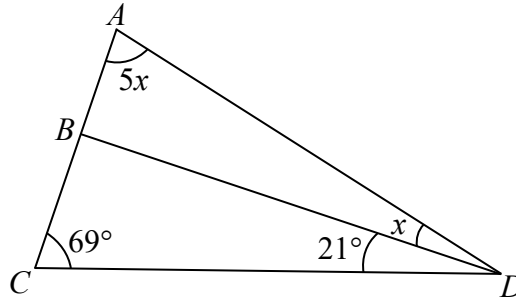
44. Find the area of polygon $ABCDE$ in the figure.



45. In the figure, $\angle BAC = 34^\circ$ and $\angle ACB = 73^\circ$. Prove that $\triangle ABC$ is an isosceles triangle.



46. In the figure, ABC is a straight line. $\angle ACD = 69^\circ$, $\angle BDC = 21^\circ$, $\angle ADB = x$ and $\angle CAD = 5x$. Find x .



47. The following data show the lunch expenses (\$) of 15 students yesterday.

32	35	44	57	68
30	48	65	62	41
41	52	55	37	69

According to the above data, complete the stem-and-leaf diagram in the **ANSWER BOOKLET**.

END OF PAPER

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Answers written on this page will not be marked.

