EXAM PAPER

Maths Year 10 — Practice Exam 2

PREVIEW
This file has the first 30 of the 60 questions in this paper. The rest is locked: it comes with a PrepNest plan, or with the paper itself for VCE.

Total time: 80 minutes

SECTIONS IN THIS PAPER

- Numeracy — non-calculator — 40 min (no calculator)
- Numeracy — calculator — 40 min (calculator allowed)

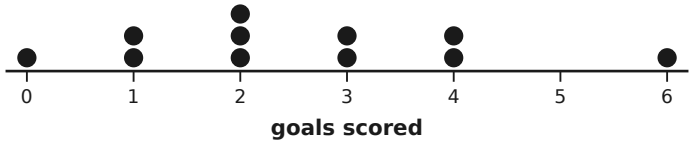
INSTRUCTIONS

Answer every question you can. Write your working in the space provided for long-answer questions. Marking guidance and full explanations are provided in the separate answer key.

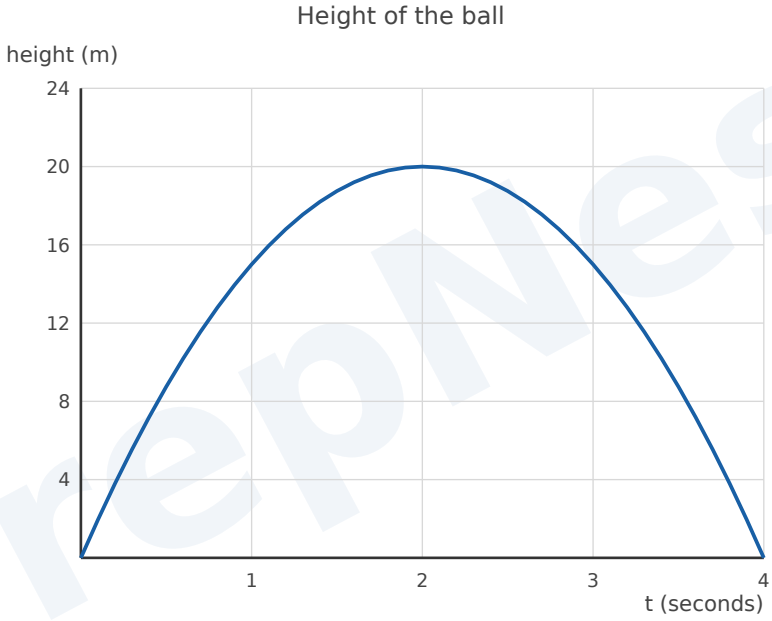
Numeracy — non-calculator

40 minutes • No calculator

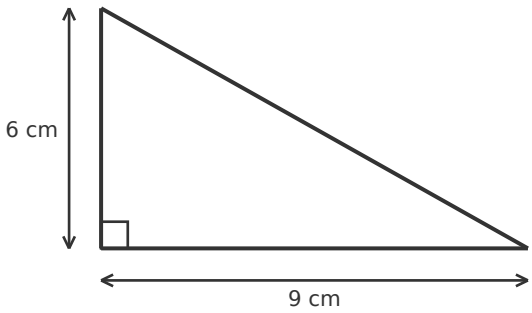
1. The dot plot below shows the number of goals scored in each of 11 matches. Write down the median.



2. From the graph below, write down the number of seconds the ball is in the air.



3. The right-angled triangle below has the measurements shown. Write down its area, in square centimetres.



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4. The table below gives a five-number summary. Write down the interquartile range.

Five-number summary

Minimum	Q1	Median	Q3	Maximum
4	11	16	23	31

5. Which of these is closest in value to $\sqrt{40}$?

A. 5.7

B. 20

C. 6.3

D. 6.9

6. A taxi charges a $3 flagfall plus $2 per kilometre, so the fare is $C(d) = 2d + 3$. The fare for a 7 km trip is

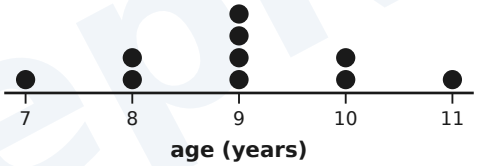
A. $14

B. $21

C. $17

D. $35

7. The dot plot below shows the ages of children at a party. Write down the mode.



8. Solve the simultaneous equations $2x + y = 11$ and $x - y = 1$.

A. $x = 4, y = 3$

B. $x = 3, y = 5$

C. $x = 5, y = 1$

D. $x = 2, y = 7$

9. Two triangles have two pairs of equal sides, and the angles between those sides are equal. Which test proves that the triangles are congruent?

A. SSS

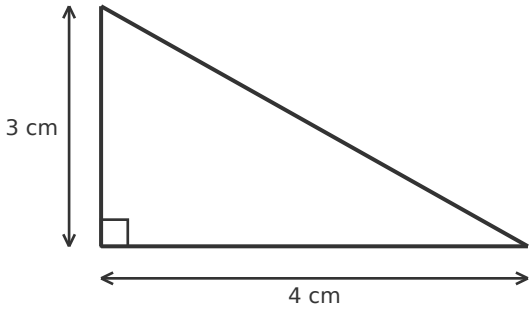
B. SAS

C. AAA

D. RHS

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10. The triangle below is enlarged so that every side is three times as long. Its area becomes



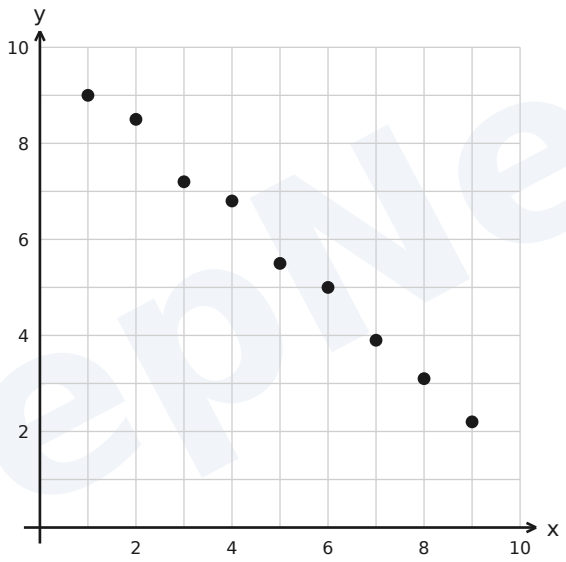
A. three times as large

B. nine times as large

C. six times as large

D. twenty-seven times as large

11. Which best describes the association shown in the scatterplot?



A. a weak negative association

B. a strong positive association

C. no clear association

D. a strong negative association

12. The line through $(-1, 5)$ and $(3, -3)$ has gradient

A. -2

B. 2

C. $-1/2$

D. -8

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13. What is the surface area of a sphere with a radius of 2 cm, in terms of π?

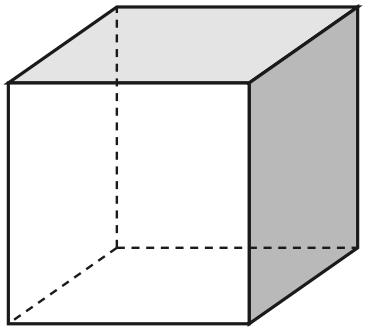
A. 4π cm²

B. 8π cm²

C. 16π cm²

D. $32\pi/3$ cm²

14. Two cubes have edges of 2 cm and 6 cm.
What is the ratio of their volumes?



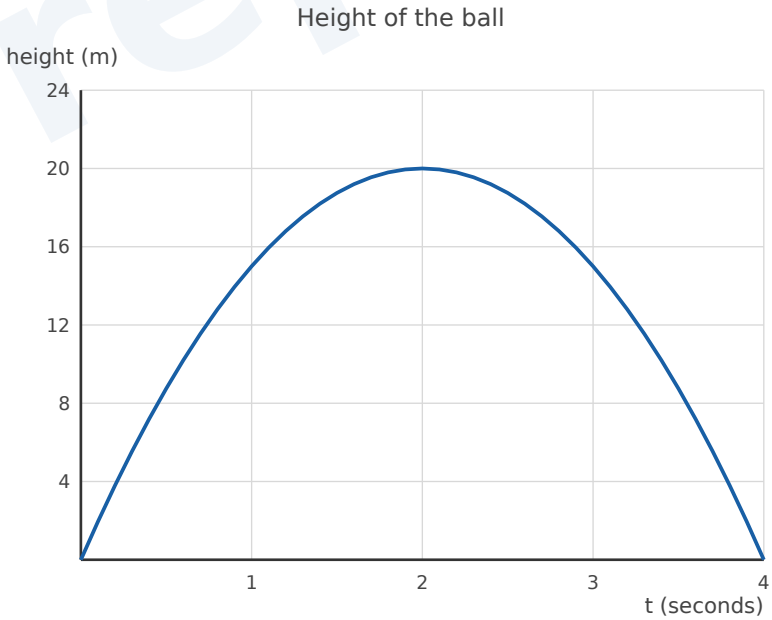
A. 1 : 3

B. 1 : 9

C. 1 : 6

D. 1 : 27

15. The graph below shows the height of a ball, in metres, t seconds after it is thrown. Write down the greatest height it reaches, in metres.



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16. Expand and simplify $(2x - 3)^2$.

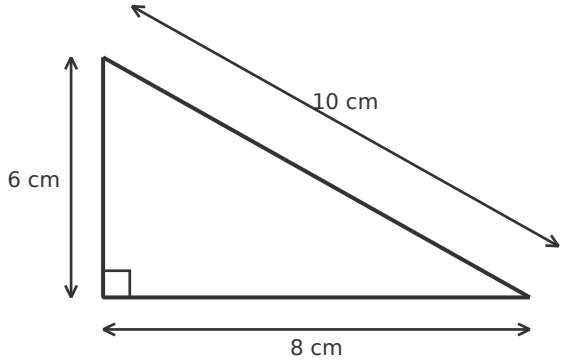
A. $4x^2 + 9$

B. $4x^2 - 6x + 9$

C. $4x^2 - 12x + 9$

D. $2x^2 - 12x + 9$

17. For the triangle below, write down the value of $\tan(\theta)$ as a fraction in simplest form, where θ is the angle at the bottom-left corner.



18. A cone and a cylinder have the same radius and the same height. The volume of the cone is

A. half of the cylinder

B. equal to the cylinder

C. one third of the cylinder

D. three times the cylinder

19. Which is $\sqrt{18} + \sqrt{8}$ in simplest surd form?

A. $5\sqrt{2}$

B. $\sqrt{26}$

C. $2\sqrt{13}$

D. $10\sqrt{2}$

20. The profit, in dollars, from selling x items is $P(x) = 2x^2 - 30x$. The profit from selling 20 items is

A. \$200

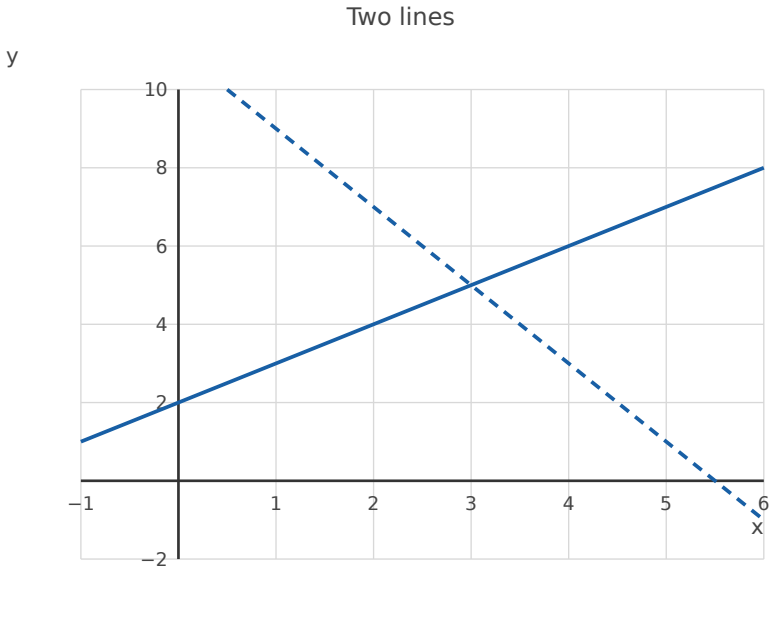
B. \$170

C. \$−200

D. \$1000

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21. The two lines below intersect at



A. (3, 5)

B. (5, 3)

C. (2, 4)

D. (4, 6)

22. A rectangular courtyard is 1 metre longer than it is wide and has an area of 6 m². Solving $w^2 + w - 6 = 0$ gives the possible widths as

A. w = 3 or w = −2, so the width is 3 m

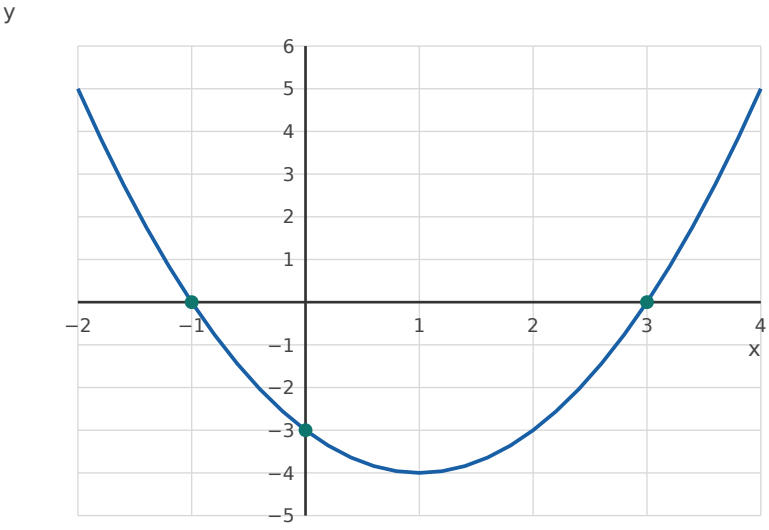
B. w = 2 or w = 3, so the width is 3 m

C. w = 2 or w = −3, so the width is 2 m

D. w = 6 or w = 1, so the width is 1 m

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23. The parabola crosses the x-axis at −1 and 3, and the y-axis at −3. Which is its rule?



A. $y = (x - 1)(x + 3)$

B. $y = (x + 1)(x + 3)$

C. $y = -(x + 1)(x - 3)$

D. $y = (x + 1)(x - 3)$

24. Seven students recorded the number of books they read over summer: 2, 4, 5, 7, 9, 12, 15. If an eighth student who read 20 books is added, the median becomes

A. 7

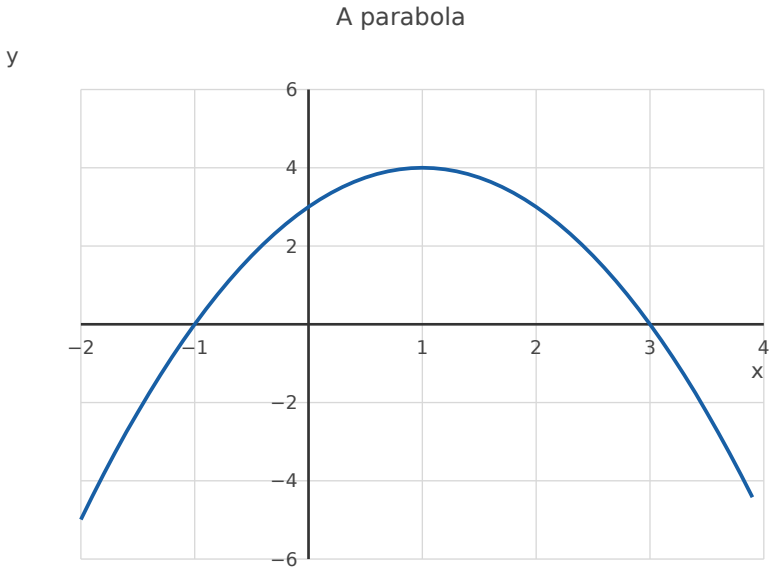
B. 9

C. 8

D. 9.25

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25. The graph below shows a parabola. Its rule is



A. $y = (x - 1)^2 + 4$

B. $y = -(x + 1)^2 + 4$

C. $y = -(x - 1)^2 + 4$

D. $y = (x + 1)^2 - 4$

26. Rationalise the denominator of $6/\sqrt{3}$.

A. $2\sqrt{3}$

B. $6\sqrt{3}$

C. $\sqrt{2}$

D. $3\sqrt{2}$

27. A female student from the survey is chosen at random.
What is the probability that she wears glasses?

Survey of Year 10 students

	Wears glasses	No glasses
Female	12	28
Male	9	31

A. 3/10

B. 12/80

C. 12/21

D. 4/7

28. Two similar triangles have corresponding sides in the ratio 2 : 5. The ratio of their areas is

A. 2 : 5

B. 8 : 125

C. 10 : 25

D. 4 : 25

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29. Evaluate 8^(−2/3).

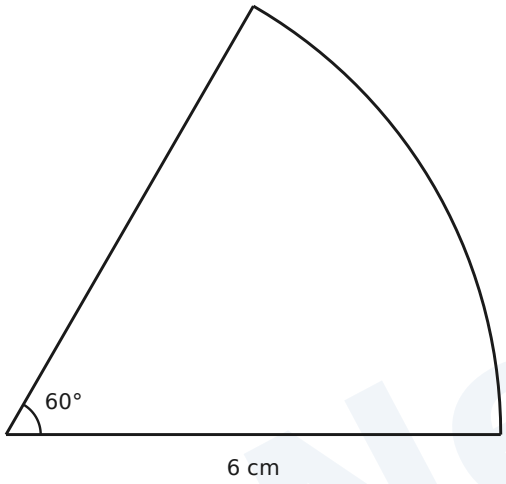
A. −4

B. 1/4

C. 4

D. 1/16

30. What is the length of the curved edge of this sector, in terms of π?



A. 2π cm

B. 6π cm

C. 12π cm

D. π cm

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60.

30 questions locked, up to question 60.

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PREVIEW

That’s the end of the preview

You’ve seen the first 30 of the 60 questions in Maths Year 10 — Practice Exam 2. The full paper is worth 60 marks.

STILL TO COME	QUESTIONS	MARKS
Numeracy — calculator	30	30

The full paper comes with

- Every question, printed exactly like the ones in this preview
- The complete answer key, with the working behind every mark
- A topic report after marking, showing what to practice next

Get the full paper at

prepnest.com.au/practice/exams/math-year_10-2

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