EXAM PAPER

Maths Year 10 — Practice Exam 1

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)

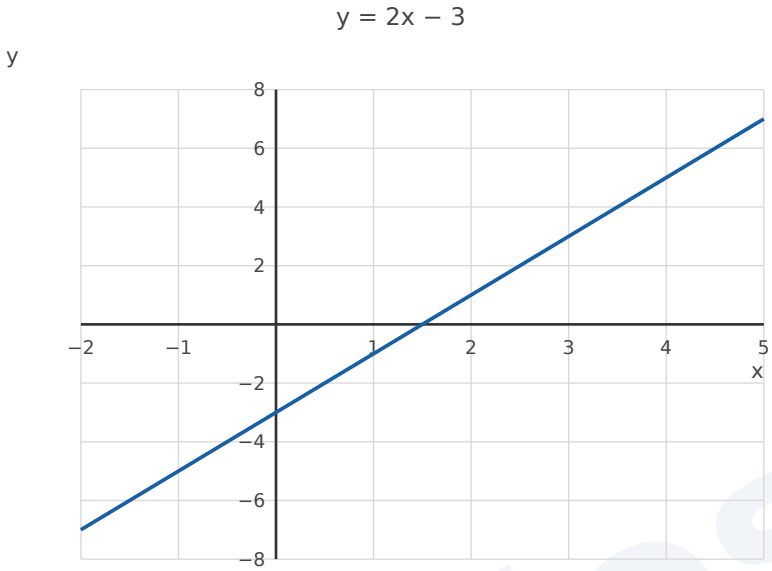
INSTRUCTIONS

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 graph below shows y = 2x − 3. Write down its gradient.



2. A data set has a median of 24 and an interquartile range of 10, with Q1 = 19. The value of Q3 is

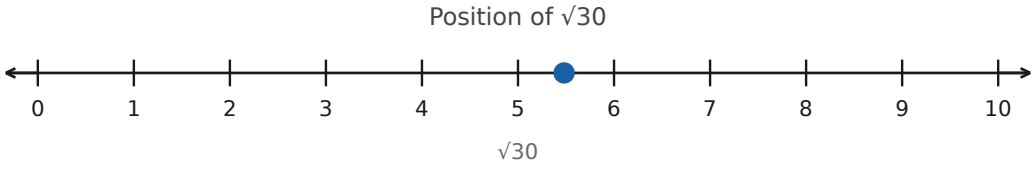
A. 29

B. 34

C. 14

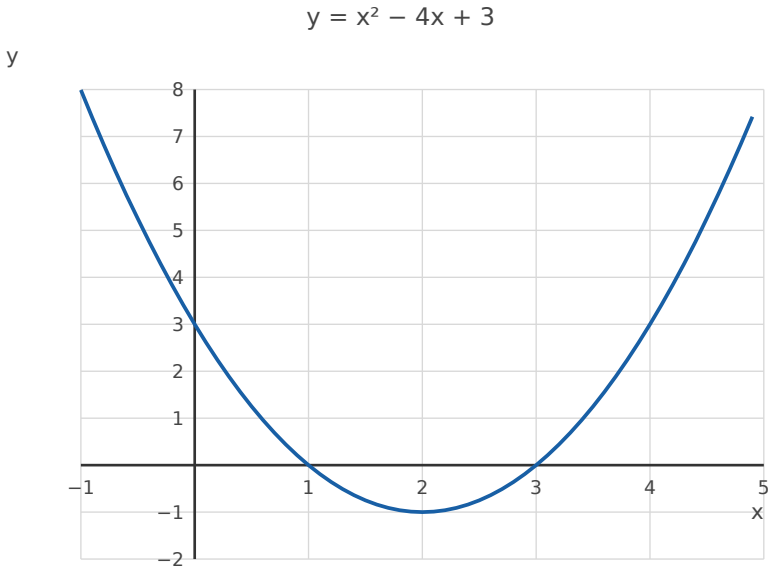
D. 24

3. On the number line below, the marked point lies between two consecutive whole numbers. Write down the smaller of those two whole numbers.

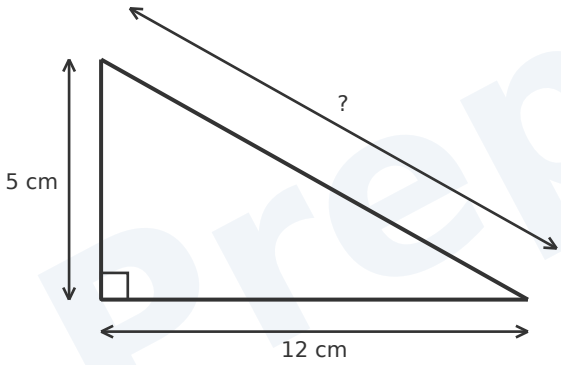


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4. For the graph below, write down the y-intercept of $y = x^2 - 4x + 3$.



5. The right-angled triangle below has the measurements shown. Write down the length of the hypotenuse, in centimetres.



6. A cube has side length x^5 cm and a square has side length x^2 cm. The ratio of the cube's side to the square's side, simplified, is

A. x^3

B. x^7

C. $x^{2.5}$

D. x^{10}

7. The mass of a grain of sand is about 0.000 004 5 kg. In scientific notation this is

A. 4.5×10^6 kg

B. 45×10^{-7} kg

C. 4.5×10^{-5} kg

D. 4.5×10^{-6} kg

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8. Events A and B are independent, with Pr(A) = 0.4 and Pr(B) = 0.5.
What is Pr(A and B)?

9. Solve $x^2 + 2x - 15 = 0$.

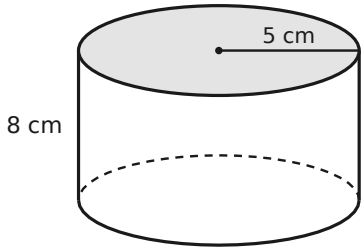
A. $x = -3$ or $x = 5$

B. $x = 3$ or $x = -5$

C. $x = 3$ or $x = 5$

D. $x = 15$ or $x = -1$

10. What is the total surface area of this closed cylinder, in terms of π?



A. 80π cm²

B. 105π cm²

C. 130π cm²

D. 200π cm²

11. Which sample is most likely to be representative of all students at a large school?

A. The first thirty students to arrive one morning

B. All students in the school band

C. Every twentieth name on the full school roll

D. Students who volunteer to take part

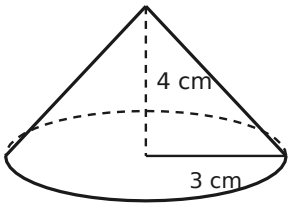
12. The table below shows the mass of three parcels in scientific notation. Write down the letter of the heaviest parcel.

Parcel masses

Parcel	A	B	C
Mass (kg)	3.2×10^2	9.8×10^1	1.1×10^3

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13. What is the volume of this cone, in terms of π?



A. 4π cm³

B. 12π cm³

C. 36π cm³

D. 48π cm³

14. Solve $x^2 = 5x$.

A. x = 5 only

B. x = −5 or x = 0

C. x = 0 or x = 5

D. x = √5

15. Adding a value far above every other value to a data set will

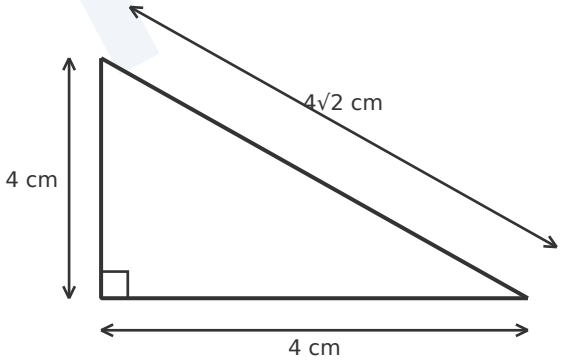
A. increase the mean much more than the median

B. increase the median much more than the mean

C. leave both unchanged

D. decrease the mean

16. In the triangle below, the angle at the bottom-left corner is closest to



A. 30°

B. 60°

C. 90°

D. 45°

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17. A sheet of paper is folded in half repeatedly. After n folds its thickness is multiplied by 2^n. The value of 2^{-3}, the factor for "unfolding" three times, is

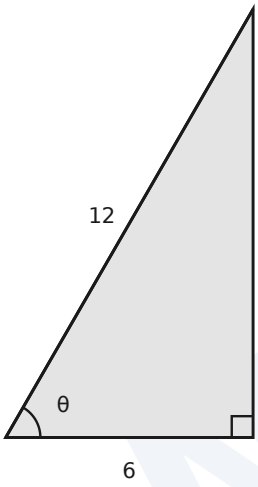
A. −8

B. −6

C. 8

D. 1/8

18. Find the size of θ, in degrees. (cos 60° = 1/2)



19. A square tile has an area of 72 cm². Its side length in simplest surd form is

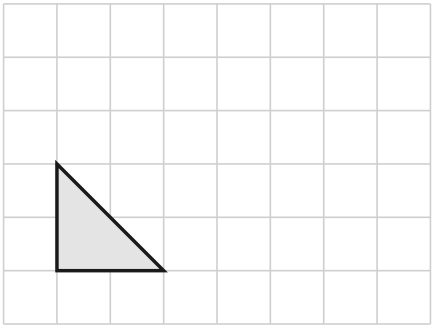
A. 8√3 cm

B. 6√2 cm

C. 2√18 cm

D. 36√2 cm

20. The triangle is enlarged by a scale factor of 3.
What is the area of the enlarged triangle, in square centimetres?



Each square is 1 cm by 1 cm

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21. The temperature of a cooling engine, in degrees Celsius above the air temperature, is $T(t) = 80 - t^2$ after t minutes. After 3 minutes it is

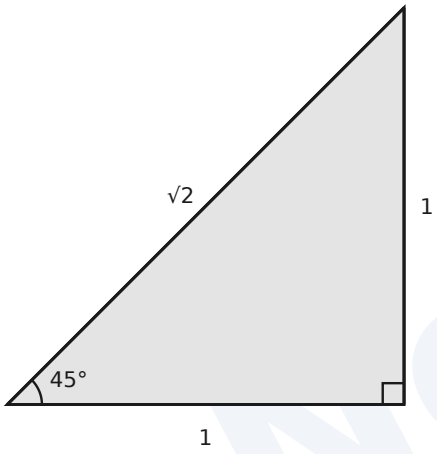
A. 77 °C above air temperature

B. 74 °C above air temperature

C. 80 °C above air temperature

D. 71 °C above air temperature

22. Use the triangle to find the exact value of cos 45°.



A. 1/√2

B. 1/2

C. √3/2

D. 1

23. A bag holds 4 red and 6 green counters. Two are drawn without replacement. The probability that both are red is

A. 4/25

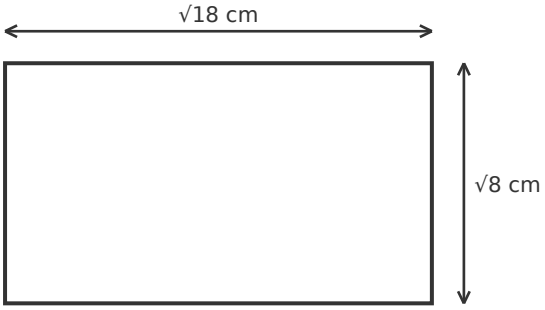
B. 2/15

C. 8/45

D. 2/5

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24. The rectangle below has the dimensions shown. Its exact perimeter is



A. √52 cm

B. 10√2 cm

C. 5√2 cm

D. 12√2 cm

25. The parabola $y = (x - 2)^2 - 9$ has x-intercepts at

A. x = 2 and x = −9

B. x = −1 and x = 5

C. x = −5 and x = 1

D. x = 3 and x = −3

26. Using the five-number summary below, any value greater than which number would be shown as an outlier?

Five-number summary

Minimum	Q1	Median	Q3	Maximum
4	11	16	23	31

A. 35

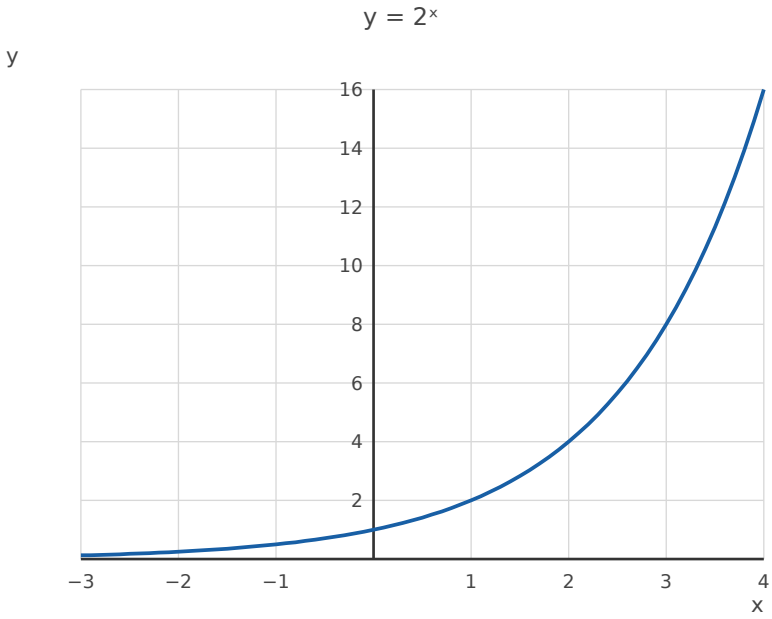
B. 46

C. 41

D. 29

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27. The graph below is of $y = 2^x$. As x decreases, the curve



A. crosses the x-axis at x = 0

B. becomes negative

C. levels out at y = 1

D. approaches zero without ever reaching it

28. Simplify $(2x^3y)^4 \div (4x^5y^2)$.

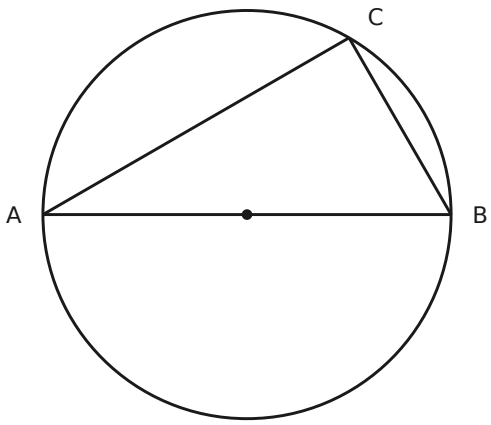
A. $8x^7y^2$

B. $4x^7y^2$

C. $4x^{12}y^4$

D. $2x^7y^2$

29. AB is a diameter of the circle and C is a point on the circle.
What is the size of angle ACB, in degrees?



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30. Make r the subject of the formula $A = \pi r^2$.

A. $r = A/\pi$

B. $r = (A/\pi)^2$

C. $r = \sqrt{(A/\pi)}$

D. $r = \sqrt{A}/\pi$

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60.

30 questions locked, up to question 60.

PREVIEW

That’s the end of the preview

You’ve seen the first 30 of the 60 questions in Maths Year 10 — Practice Exam 1. 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

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