Maths Year 7 — Practice Exam 2 — Answers & Explanations

Answers to the 30 questions in the free preview.

Numeracy — non-calculator

1. Answer: 20
P = 2 × 7 + 2 × 3 = 14 + 6 = 20.

2. B. t = 2n + 2
The designs have 4, 6 and 8 tiles, so each design adds 2. Check t = 2n + 2: Design 1 gives 2 × 1 + 2 = 4 and Design 3 gives 2 × 3 + 2 = 8. t = 4n works for Design 1 only.

3. Answer: 60 cm³
Volume = length × width × height = 5 × 3 × 4 = 60 cm³.

4. Answer: 8
The sum is 4 + 7 + 9 + 12 = 32, and 32 ÷ 4 = 8.

5. C. 100
4.87 is close to 5 and 19.6 is close to 20, and 5 × 20 = 100.

6. C. 40
$2^3 = 2 \times 2 \times 2 = 8$, and 8 × 5 = 40. 30 treats 2^3 as 2 × 3.

7. Answer: 6
The factors of 18 are 1, 2, 3, 6, 9, 18 and of 24 are 1, 2, 3, 4, 6, 8, 12, 24. The highest they share is 6.

8. C. 2021 and 2022
The increases were 15, 10, 25 and 10 hundred. The largest, 25 hundred, was between 2021 and 2022, where the line is steepest.

9. C. 14
Divide and multiply before subtracting, left to right: 12 ÷ 4 = 3 and 3 × 2 = 6. Then 20 − 6 = 14. Subtracting first gives 8 ÷ 4 × 2 = 4.

10. C. 108°
Angles on a straight line add to 180°. There are 5 parts, so each part is 36°, and the larger angle is 3 × 36° = 108°.

11. A. reflection in the y-axis
Each corner of B is the same distance from the y-axis as the matching corner of A, on the other side: (4, 1) goes to (−4, 1). That is a reflection in the y-axis. A translation would not flip the triangle over.

12. D.
The stems are the tens and the leaves are the ones: 31 and 35 give 3 | 1 5, then 42, 47 and 47 give 4 | 2 7 7, and 50 gives 5 | 0. That is plot D. Plot A shows only one 47.

13. Answer: 9
How many halves are in 4.5? Two in every whole: 4.5 × 2 = 9.

14. B. $90
25% of $120 is $120 ÷ 4 = $30. The sale price is $120 − $30 = $90. $30 is the discount, not the price.

15. A. 1.5 km
6 × 250 m = 1500 m, which is 1.5 km.

16. B. 0.2
A 4 was rolled 10 times in 50 rolls: 10/50 = 0.2. 1/6 is the theoretical probability, and 10 is the frequency, not the relative frequency.

17. Answer: 62
y goes up by 3 each time x goes up by 1, and y = 5 when x = 1, so y = 3x + 2. When x = 20, y = 60 + 2 = 62.

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18. Answer: 70
Angles at a point add to 360°: 90 + 130 + 2x = 360, so 2x = 140 and x = 70.

19. Answer: 18
12 boys is 6 lots of 2, so there are 6 lots of 3 girls: 18.

20. A. 1/2
The primes from 1 to 8 are 2, 3, 5 and 7: four of the eight sectors, so 4/8 = 1/2. (1 is not prime.)

21. Answer: 24 buckets
For every 1 bucket of cement there are 3 buckets of sand. 8 buckets of cement need 8 × 3 = 24 buckets of sand.

22. Answer: −4
2 × 3 + 5 × (−2) = 6 − 10 = −4.

23. Answer: 6
A regular hexagon looks the same after each turn of 60°, which happens 6 times in a full turn, so its order of rotational symmetry is 6.

24. B. 5 faces, 9 edges, 6 vertices
It has 2 triangular faces and 3 rectangular faces (5), 3 edges on each triangle plus 3 joining them (9), and 3 vertices on each triangle (6). Check: 5 + 6 − 9 = 2.

25. A. 2a + 7b
Collect like terms: 3a − a = 2a and 5b + 2b = 7b, giving 2a + 7b. 4a + 7b adds the a instead of subtracting it.

26. Answer: 55
Angles on a straight line add to 180°, and the square mark shows a right angle of 90°. x = 180 − 35 − 90 = 55.

27. C. 7/10
As decimals: 7/10 = 0.70, 0.68, 69% = 0.69 and 2/3 ≈ 0.667. The largest is 7/10.

28. Answer: 88
The angles in a quadrilateral add to 360°. w = 360 − 80 − 95 − 97 = 88.

29. Answer: 6
Five numbers with mean 6 add to 30. The four known numbers add to 24, so the fifth is 30 − 24 = 6.

30. B. −1
Subtracting −4 is the same as adding 4: −8 + 3 + 4 = −1. Treating − (−4) as −4 gives −9.

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PREVIEW

That’s the end of the preview answers

These are the answers to the 30 preview questions. The full answer key covers all 60 questions in Maths Year 7 — Practice Exam 2, with the working behind every mark.

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Numeracy — calculator	30	30

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