# Maths Year 8 — Practice Exam 3 — Answers & Explanations

Answers to the 30 questions in the free preview.

## Numeracy — non-calculator

**1.** B. $5^4$

Dividing powers of the same base subtracts the indices: 5^(7 − 3) = $5^4$.

**2.** A. $2^8$

When powers of the same base are multiplied, the indices are added, so $2^5 \times 2^3$ is $2^8$. Multiplying the indices gives $2^{15}$, which is a common mistake.

**3.** B. $18.65

The items cost $12.95 + $18.40 = $31.35 altogether. Her change is $50.00 − $31.35 = $18.65. $31.35 is the cost of the items, not the change.

**4.** D. 120 $cm^3$

Volume = length × width × height = 10 × 4 × 3 = 120 $cm^3$. 164 $cm^2$ is its surface area, and 17 is the three lengths added together.

**5.** D. 10:15 pm

7:50 pm plus 2 hours is 9:50 pm, and 25 more minutes is 10:15 pm.

**6.** A. Ticket sales are generally decreasing.

Apart from a small rise in 2022, sales fall from year to year, from 520 thousand down to 410 thousand: a decreasing trend.

**7.** Answer: 92

10% of 80 is 8 and 5% is 4, so 15% is 12. 80 + 12 = 92.

**8.** C. 3/8

3 of the 8 equal sections are blue, so the probability is 3/8. The answer 3/5 compares blue with the other sections instead of with all 8.

**9.** Answer: −$5

120 − 75 = 45, then 45 − 90 = −45, then −45 + 40 = −5. The account is overdrawn by $5.

**10.** Answer: 314

Area = $\pi r^2 \approx 3.14 \times 10 \times 10 = 314$ $cm^2$.

**11.** Answer: 129°

The angles marked 51° and x are co-interior: they sit between the parallel lines on the same side of the line crossing them, so they add to 180°. x = 180 − 51 = 129.

**12.** Answer: 0.4

30 − 18 = 12 students have no pet, and 12/30 = 0.4.

**13.** Answer: 21

There are 10 games. Put in order, the 5th and 6th values are both 21, so the median is 21.

**14.** A. 2x + 9 = 3

Substitute x = −3: 2 × (−3) + 9 = −6 + 9 = 3, which is true. The others are true for x = 6, 3 and 3.

**15.** D. 2 kg bag

Compare the price per kilogram: the 500 g bag works out at $5.00 per kg, the 1 kg bag at $4.40, the 2 kg bag at $4.00 and the 5 kg bag at $4.20. The 2 kg bag is cheapest per kilogram. The biggest bag is not always the best value.

**16.** C. 18 $cm^2$

The enlarged rectangle is 6 cm by 3 cm, so its area is 18 $cm^2$, which is $3^2 = 9$ times the original 2 $cm^2$. 6 $cm^2$ triples the area instead.

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**17.** D. (−3, 2)
A half-turn about the origin changes the sign of both coordinates: (3, −2) becomes (−3, 2).

**18.** Answer: 60
The whole circle, 360°, stands for 360 people, so each degree is one person. 60° stands for 60 people.

**19.** C. 3/8
3/8 = 0.375 because 8 = 2 × 2 × 2. Fractions whose denominators have factors other than 2 and 5, such as 3, 6 and 7, give repeating decimals.

**20.** B. 9/40
There are 12 + 8 + 9 + 11 = 40 students, and 9 are in Year 8 and play sport: 9/40. 9/20 is the probability among Year 8 students only.

**21.** Answer: 5
Subtract 2x from both sides: 3x + 3 = 18. Subtract 3: 3x = 15, so x = 5.

**22.** Answer: 3
From (0, −2) to (2, 4) the line rises 6 while running 2 across. Gradient = rise ÷ run = 6 ÷ 2 = 3.

**23.** Answer: 28
350 km is 3.5 lots of 100 km, and 3.5 × 8 = 28 L.

**24.** D. 115°
An exterior angle of a triangle equals the sum of the two opposite interior angles: y = 48 + 67 = 115°. Another way: the third angle inside is 180 − 48 − 67 = 65°, and y = 180 − 65 = 115°.

**25.** A. P
Each mark is a quarter. −1 3/4 is three quarters to the left of −1, which is point P. R is at +1 3/4.

**26.** A. 6(2a − 3)
The highest common factor of 12a and 18 is 6, so 12a − 18 = 6(2a − 3). Expanding 6(2a − 3) gives back 12a − 18.

**27.** B.
Net B folds into a cube: the row of four wraps around, and the squares above and below become the top and bottom. Net A has five squares in a row, net C contains a 2 by 2 block of squares, and in net D both extra squares fold onto the same face.

**28.** Answer: −11
Divide first: −36 ÷ 4 = −9. Then −9 + (−2) = −11.

**29.** Answer: 9
The exterior angles of any polygon add to 360°, so the polygon has 360 ÷ 40 = 9 sides.

**30.** D. 0
$(-3)^2$ is 9, because a negative times a negative is positive, and $3^2$ is also 9. So the value is 9 − 9 = 0.

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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 8 — Practice Exam 3, with the working behind every mark.

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