Grade 8 PECTAA Mathematics Model Paper 2026-27

1. Which of the following is an example of a rational number?

A. √5

B. π

C. 3/4

D. e

Correct answer: C — 3/4

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2. Identify the irrational number among the options.

A. 0.25

B. √7

C. √16

D. -3

Correct answer: B — √7

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3. What is the absolute value of 6?

A. -6

B. 6

C. 0

D. 1

Correct answer: B — 6

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4. Find the multiplicative inverse of 2.

A. -2

B. 2

C. 1/2

D. -1/2

Correct answer: C — 1/2

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5. Round 15.6389 to two decimal places.

A. 15.63

B. 15.64

C. 15.65

D. 15.66

Correct answer: B — 15.64

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6. Approximate -43.549 to one decimal place.

A. -43.6

B. -43.5

C. -43.54

D. -43.55

Correct answer: B — -43.5

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7. The set of integers is represented by:

A. N

B. W

C. Z

D. Q

Correct answer: C — Z

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8. List the first four positive even numbers.

A. {1, 3, 5, 7}

B. {2, 4, 6, 8}

C. {0, 2, 4, 6}

D. {3, 5, 7, 9}

Correct answer: B — {2, 4, 6, 8}

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9. If B = {p,q}, then the power set P(B) is:

A. {∅, {p}, {q}, {p,q}}

B. {{p}, {q}}

C. {∅, {p,q}}

D. {{p}, {q}, {p,q}}

Correct answer: A — {∅, {p}, {q}, {p,q}}

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10. De-Morgan's law states that (A ∩ B)' equals:

A. A ∩ B

B. A' ∩ B'

C. A ∪ B

D. A' ∪ B'

Correct answer: D — A' ∪ B'

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11. If set X = {a, b, c} and set Y = {b, c, d}, then X ∩ Y is:

A. {a, b, c, d}

B. {b, c}

C. {a, d}

D. {}

Correct answer: B — {b, c}

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12. The number of elements in the power set of A = {x, y} is:

A. 2

B. 4

C. 3

D. 1

Correct answer: B — 4

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13. In the proportion 5 : x :: x : 20, the value of x is:

A. 5

B. 10

C. 15

D. 20

Correct answer: B — 10

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14. If the price of 8 books is Rs 400, then the price of 12 such books will be:

A. Rs 500

B. Rs 600

C. Rs 700

D. Rs 800

Correct answer: B — Rs 600

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15. In the proportion a : b :: c : d, the third term is:

A. a

B. b

C. c

D. d

Correct answer: C — c

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16. A shirt costs Rs 250 and is sold for Rs 200. The discount percent is:

A. 10%

B. 20%

C. 30%

D. 40%

Correct answer: B — 20%

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17. If a man buys a bike for Rs 70,000 and sells it for Rs 80,000, his profit is:

A. Rs 5,000

B. Rs 10,000

C. Rs 15,000

D. Rs 20,000

Correct answer: B — Rs 10,000

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18. The formula for the nth term of an arithmetic sequence is:

A. an = a1 - (n-1)d

B. an = a1 + (n-1)d

C. an = a1 × d

D. an = a1 / d

Correct answer: B — an = a1 + (n-1)d

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19. If an = 3n + 2, then the value of a4 is:

A. 10

B. 14

C. 12

D. 16

Correct answer: B — 14

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20. The next term in the arithmetic sequence 2, 5, 8, 11, _ is:

A. 12

B. 14

C. 15

D. 13

Correct answer: B — 14

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21. The sum of interior angles of a triangle is:

A. 180°

B. 360°

C. 90°

D. 270°

Correct answer: A — 180°

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22. If 3x + 5 = 20, then the value of x is:

A. 3

B. 5

C. 7

D. 9

Correct answer: B — 5

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23. The quadratic equation with roots 2 and 3 is:

A. x^2 - 5x + 6 = 0

B. x^2 + 5x + 6 = 0

C. x^2 - 5x - 6 = 0

D. x^2 + 5x - 6 = 0

Correct answer: A — x^2 - 5x + 6 = 0

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24. The median of 3, 5, 7, 9, 11 is:

A. 5

B. 7

C. 9

D. 11

Correct answer: B — 7

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25. Factorization of a^2 - b^2 is:

A. (a + b)(a - b)

B. (a - b)(a - b)

C. (a + b)(a + b)

D. (a^2 + b^2)

Correct answer: A — (a + b)(a - b)

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26. The area of a circle with radius r is:

A. πr^2

B. 2πr

C. πr

D. 4πr^2

Correct answer: A — πr^2

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27. If log_2(8) = x, then x is:

A. 2

B. 3

C. 4

D. 5

Correct answer: B — 3

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28. The value of sin(90°) is: (sin

A. 0

B. 1

C. -1

D. 1/2

Correct answer: B — 1

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29. The distance formula between two points (x1, y1) and (x2, y2) is:

A. √((x2 - x1)^2 + (y2 - y1)^2)

B. √((x2 + x1)^2 + (y2 + y1)^2)

C. (x2 - x1) + (y2 - y1)

D. (x2 + x1) - (y2 + y1)

Correct answer: A — √((x2 - x1)^2 + (y2 - y1)^2)

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30. The sum of first 10 natural numbers is:

A. 45

B. 55

C. 50

D. 60

Correct answer: B — 55

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31. The slant height of a square pyramid with base side 9 cm and triangular face height 11 cm is:

A. 9 cm

B. 10 cm

C. 11 cm

D. 12 cm

Correct answer: C — 11 cm

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32. If the radius of a sphere is 4 cm, the volume of the sphere will be:

A. (64/3)π cm^3

B. 32π cm^3

C. 48π cm^3

D. (256/3)π cm^3

Correct answer: D — (256/3)π cm^3

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33. In a right-angled triangle with legs 7 cm and 24 cm, the hypotenuse is:

A. 23 cm

B. 25 cm

C. 26 cm

D. 30 cm

Correct answer: B — 25 cm

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34. Identify the pair of congruent figures (SSS congruence):

A. Two scalene triangles

B. Two equilateral triangles with side 6 cm

C. Two rectangles

D. Two circles

Correct answer: B — Two equilateral triangles with side 6 cm

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35. If ΔABC ≅ ΔDEF, the pair of congruent sides is:

A. AB ≅ DF

B. BC ≅ DF

C. AC ≅ DE

D. AB ≅ DE

Correct answer: D — AB ≅ DE

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36. A cone has radius 3 cm and height 4 cm; the slant height is:

A. 3 cm

B. 4 cm

C. 5 cm

D. 6 cm

Correct answer: C — 5 cm

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37. The volume formula of a sphere is:

A. (4/3)πr^3

B. 4πr^2

C. (1/3)πr^2h

D. πr^2h

Correct answer: A — (4/3)πr^3

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38. The three angles of an equilateral triangle are:

A. 45°, 45°, 90°

B. 60°, 60°, 60°

C. 30°, 60°, 90°

D. 40°, 50°, 90°

Correct answer: B — 60°, 60°, 60°

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39. The median of the data 3, 7, 9, 9, 12 is:

A. 7

B. 9

C. 8

D. 12

Correct answer: B — 9

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40. The mode of the data 4, 6, 6, 8, 10 is:

A. 4

B. 6

C. 8

D. 10

Correct answer: B — 6
