Trigonometry and Optimization — Practice Test

Yukon Foundations of Mathematics 11 (MFOM-11) • 25 questions

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **In a right triangle, an angle measures 30° and the hypotenuse is 10. The side opposite the angle is**

- A 5
- B 8.7
- C 10
- D 20

Understand It with Pulse | Flag a mistake

2 **In a right triangle, an angle measures 60° and the hypotenuse is 12. The side adjacent to the angle is**

- A 24
- B 6
- C 10.4
- D 12

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3 **A right triangle has legs 6 and 8. The hypotenuse is**

- A 48
- B 100
- C 10
- D 14

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4 A right triangle has hypotenuse 13 and one leg 5. The other leg is

- A 18
- B 7
- C 8
- D 12

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5 In a triangle, angle A measures 30°, side a = 8, and angle B measures 45°. Side b, to one decimal place, is about

- A 11.3
- B 16.0
- C 8.0
- D 5.7

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6 **In a triangle, two sides measure 5 and 7 with included angle 60°. The third side, to one decimal place, is about**

- A 4.0
- B 6.2
- C 8.6
- D 12.0

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7 **In a triangle, the sides measure 5, 6, and 7. The angle opposite the side of length 7, to one decimal place, is about**

- A 44.4°
- B 90.0°
- C 78.5°
- D 60.0°

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8 In a right triangle, the side opposite an acute angle is 3 and the hypotenuse is 6. The angle measures

- A 30°
- B 45°
- C 60°
- D 90°

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9 A ramp rises at an angle of elevation of 45°. At a horizontal distance of 20 m from its base, its height, in metres, is

- A 20
- B 28.3
- C 40
- D 10

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10 **A rectangle has perimeter 40. Its maximum possible area is**

- A 400
- B 100
- C 80
- D 160

Understand It with Pulse | Flag a mistake

11 **Two numbers have sum 20. Their maximum possible product is**

- A 40
- B 400
- C 100
- D 200

Understand It with Pulse | Flag a mistake

12 **A rectangle has area 36. Its minimum possible perimeter is**

- A 36
- B 12
- C 72
- D 24

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13 **In triangle ABC, side AB measures 3 and side AC measures 4, With a right angle at A. Side BC measures**

- A 5
- B 7
- C 12
- D 25

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14 **In triangle ABC, angle A measures 50°, angle B measures 60°, and side AB measures 6. Side BC, to one decimal place, is about**

- A 3.7
- B 4.9
- C 5.8
- D 6.5

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15 **In a triangle, angle A measures 30°, side a = 6, and side b = 9. Using the sine law, the number of possible triangles is**

- A none
- B one
- C two
- D three

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16 **The maximum value of $P = -2(x - 10)^2 + 50$ is**

A 10

B -2

C 100

D 50

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17 **A garden uses a wall as one side and 24 m of fencing for the other three sides. Its maximum possible area, in m^2, is**

A 72

B 144

C 48

D 96

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18 **In a triangle, two sides measure 8 and 10 with included angle 90°. The third side, to one decimal place, is about**

- A 2.0
- B 12.8
- C 18.0
- D 6.0

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19 **In a right triangle, the side opposite an angle is 9 and the adjacent side is 12. The angle, to one decimal place, is about**

- A 41.4°
- B 48.6°
- C 36.9°
- D 53.1°

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20 **A ladder leans against a wall at 70° to the ground. If the ladder is 8 m long, its height up the wall, to one decimal place, is about**

- A 2.7
- B 8.0
- C 5.6
- D 7.5

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21 **In right triangle PQR, with the right angle at P, side PQ measures 5 and side PR measures 12. Side QR measures**

- A 13
- B 17
- C 60
- D 7

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22 **Two numbers have sum 30. Their maximum possible product is**

A 900

B 225

C 300

D 150

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23 **A rectangle has perimeter 60. Its maximum possible area is**

A 900

B 150

C 225

D 300

Understand It with Pulse | Flag a mistake

24 **A farmer has 100 m of fencing for a rectangular pen against a barn wall, using the wall as one side. The maximum possible area, in m², is**

- **A** 2500
- **B** 625
- **C** 5000
- **D** 1250

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25 **In a triangle, two sides measure 7 and 9 with included angle 120°. The third side, to one decimal place, is about**

- **A** 13.9
- **B** 16.0
- **C** 11.4
- **D** 2.0

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ANSWER KEY

1. A
2. B
3. C
4. D
5. A
6. B
7. C
8. A
9. A
10. B
11. C
12. D
13. A
14. B
15. C
16. D
17. A
18. B
19. C
20. D
21. A
22. B
23. C
24. D
25. A

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