ALBERTA MATH 30-3 · UNIT 2 · 25 QUESTIONS

Trigonometry with the Sine and Cosine Laws — Practice Test

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 **Triangle ABC is shown. In triangle ABC , angle A = 42° and angle B = 68° . Side b , opposite angle B , is 15.0 m. The length of side a , to the nearest tenth of a metre, is**

- A 10.8 m
- B 20.8 m
- C 15.2 m
- D 12.0 m

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2 **Two straight edges of a triangular flower bed are 9 m and 12 m long, and they meet at an angle of 55° . The length of the third edge, to the nearest tenth of a metre, is**

- A 18.7 m
- B 10.1 m
- C 15.0 m
- D 6.9 m

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3 **In a roof truss shaped like triangle ABC , angle A = 65° , side a = 11 m (opposite A), and side b = 8 m (opposite B). The measure of angle B , to the nearest tenth of a degree, is**

- A 138.8°
- B 17.9°
- C 41.2°
- D 47.3°

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4 **A triangular lot has sides of 7 m, 9 m, and 11 m. The measure of the largest angle of the lot, to the nearest tenth of a degree, is**

- A 39.4°
- B 54.7°
- C 94.1°
- D 85.9°

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5 **Triangle ABC is shown. Points A and B are 80 m apart on one bank of a river, and C is a tree on the other bank. In triangle ABC , the angle at A is 58° and the angle at B is 72° . The distance from A to the tree, to the nearest tenth of a metre, is**

- A 88.5 m
- B 99.3 m
- C 64.4 m
- D 89.7 m

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6 **Two boats leave the same dock at the same time. One travels 12 km and the other travels 18 km, and the angle between their routes is 48° . The distance between the two boats, to the nearest tenth of a kilometre, is**

A 13.4 km

B 27.5 km

C 21.6 km

D 15.9 km

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7 **Two observers on flat ground are 2000 m apart. An airplane is directly above the line joining them, between the two observers. The angles of elevation of the airplane are 40° and 60° . The height of the airplane above the ground, to the nearest metre, is**

A 1759 m

B 1523 m

C 1286 m

D 1131 m

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8 **A builder is told that in triangle ABC , angle A = 30° , side a = 10 cm (opposite A), and side b = 16 cm. The number of different triangles that fit this description is**

- A 0
- B 1
- C 2
- D 3

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9 **Two frame members in a workshop project are 8 ft and 10 ft long, joined at an angle of 78° . A brace joins their free ends. The length of the brace, to the nearest tenth of a foot, is**

- A 11.4 ft
- B 14.0 ft
- C 12.8 ft
- D 6.3 ft

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10 **Triangle ABC is shown. A triangular sail has angles A = 50° and B = 60° . Side a , opposite angle A , is 6.0 m. The length of side c , to the nearest tenth of a metre, is**

- A 6.8 m
- B 7.4 m
- C 4.9 m
- D 7.7 m

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11 **Three radio towers form a triangle with sides of 13 km, 15 km, and 19 km. The angle opposite the 19 km side, to the nearest tenth of a degree, is**

- A 43.0°
- B 51.9°
- C 85.1°
- D 94.9°

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12 **In triangle ABC , angle A = 110° , side a = 20 m (opposite A), and side b = 14 m (opposite B). The measure of angle B , to the nearest tenth of a degree, is**

- A 138.9°
- B 77.0°
- C 35.0°
- D 41.1°

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13 **Two straight pipeline sections, 4.5 km and 6.2 km long, meet at an angle of 125° . The straight-line distance between their far ends, to the nearest tenth of a kilometre, is**

- A 9.5 km
- B 5.2 km
- C 7.7 km
- D 10.7 km

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14 **In a triangular parking lot ABC , angle A = 38° and angle B = 81° . Side a , opposite angle A , is 22 m. The length of side b , to the nearest tenth of a metre, is**

- A 13.7 m
- B 31.2 m
- C 35.3 m
- D 24.8 m

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15 **Triangle OAB is shown. A vertical mast stands at point O on flat ground. Two pegs, A and B , are in the ground with OA = 6 m, OB = 9 m, and angle AOB = 55° . The distance between the two pegs, to the nearest tenth of a metre, is**

- A 13.4 m
- B 7.4 m
- C 10.8 m
- D 4.6 m

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16 **A ship sails 10 km, then changes course and sails 14 km. The two legs and the straight line back to the start form a triangle with an angle of 140° at the turning point. The distance from the ship to its starting point, to the nearest tenth of a kilometre, is**

- A 9.0 km
- B 17.2 km
- C 24.0 km
- D 22.6 km

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17 **A triangular brace frame has sides of 4 m, 6 m, and 8 m. The angle opposite the 8 m side, to the nearest tenth of a degree, is**

- A 104.5°
- B 46.6°
- C 29.0°
- D 75.5°

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18 **A triangular banner has angles A = 45° and B = 47° . Side b , opposite angle B , is 5 ft. The length of side c , to the nearest tenth of a foot, is**

- A 4.8 ft
- B 6.8 ft
- C 3.7 ft
- D 7.1 ft

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19 **Two points, A and B , on a bridge deck are 24 m apart. A cable runs from each point to the top of a tower, T . In triangle ATB , the angle at A is 48° and the angle at B is 64° . The length of the cable from A to T , to the nearest tenth of a metre, is**

- A 19.2 m
- B 24.8 m
- C 23.3 m
- D 25.4 m

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20 **In triangle ABC , angle A = 30° , side a = 10 cm (opposite A), and side b = 16 cm. Because of the ambiguous case, angle B has two possible measures. The two possible measures, to the nearest tenth of a degree, are**

- **A** 18.2° and 161.8°
- **B** 53.1° and 116.9°
- **C** 36.9° and 143.1°
- **D** 53.1° and 126.9°

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21 **Triangle ATB is shown. Two sides of a triangular field, 20 m and 28 m long, meet at an angle of 95° . The length of fencing needed along the third side, to the nearest tenth of a metre, is**

- **A** 33.0 m
- **B** 35.8 m
- **C** 34.4 m
- **D** 48.0 m

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22 **Three soccer players stand at the corners of triangle ABC . Angle A = 72° , side a = 18 m (opposite A), and side b = 13 m (opposite B). The measure of angle B , to the nearest tenth of a degree, is**

- A 43.4°
- B 136.6°
- C 52.0°
- D 12.9°

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23 **A pyramid-shaped tent has two slant edges of 5 m each running from the apex to two corners of its square base. The diagonal between those two corners is 8.5 m. The angle at the apex between the two slant edges, to the nearest tenth of a degree, is**

- A 31.8°
- B 63.6°
- C 73.7°
- D 116.4°

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24 **Two hikers leave the same trailhead. One walks 3.4 km and the other walks 5.1 km, and the angle between their paths is 73° . The distance between the hikers, to the nearest tenth of a kilometre, is**

- A 6.9 km
- B 6.1 km
- C 5.2 km
- D 3.1 km

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25 **A parking lot is shaped like a parallelogram with adjacent sides of 18 m and 25 m. A diagonal of 32 m splits the lot into two triangles. In one of these triangles, the angle between the 18 m and 25 m sides, to the nearest tenth of a degree, is**

- A 51.1°
- B 94.8°
- C 34.1°
- D 85.2°

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ANSWER KEY

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

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