ALBERTA MATH 20-3 · UNIT 2 · 25 QUESTIONS

Trigonometry, Scale and 3-D Objects — 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 **In the right triangle shown, the hypotenuse is 12 cm and the acute angle at B is 35°. The length of the side opposite the 35° angle, to the nearest tenth, is**

- **A** 6.9 cm
- **B** 9.8 cm
- **C** 8.4 cm
- **D** 14.6 cm

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2 **A ladder 6.0 m long leans against a wall, making an angle of 65° with the ground. The height the ladder reaches on the wall, to the nearest tenth, is**

- A 2.5 m
- B 5.4 m
- C 6.0 m
- D 12.9 m

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3 **A guy wire supports a pole 8.0 m tall. The wire is attached at the top of the pole and makes an angle of 50° with the ground. The length of the wire, to the nearest tenth, is**

- A 5.1 m
- B 9.5 m
- C 10.4 m
- D 12.4 m

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4 **A tree casts a shadow 15 m long on level ground. The angle of elevation of the sun, from the tip of the shadow to the top of the tree, is 40°. The height of the tree, to the nearest tenth, is**

- **A** 9.6 m
- **B** 11.5 m
- **C** 17.9 m
- **D** 12.6 m

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5 **In the right triangle shown, the legs are 6 cm and 8 cm. The measure of the smallest acute angle, to the nearest tenth of a degree, is**

- **A** 36.9°
- **B** 53.1°
- **C** 45.0°
- **D** 30.0°

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6 **A wheelchair ramp 3.0 m long rises 0.90 m. The angle the ramp makes with the horizontal, to the nearest tenth of a degree, is**

- A 16.7°
- B 17.5°
- C 20.0°
- D 72.5°

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7 **On a scale diagram, 1 cm represents 2.5 m. A wall drawn 8 cm long on the diagram has an actual length of**

- A 3.2 m
- B 12.5 m
- C 20 m
- D 28 m

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8 **A figure is enlarged with a linear scale factor of 3. The area of the enlarged figure is how many times the original area?**

- A 3
- B 6
- C 27
- D 9

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9 **A shoebox is a rectangular prism. It sits on a table with its longest edges running left to right. Which description matches its top view?**

- A A rectangle with the long sides running left to right
- B A square with all sides equal
- C A rectangle standing upright on a short side
- D A circle

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10 **A flat-pack bookcase comes with an exploded view diagram, described in words. What does an exploded view show?**

- **A** Only the outside of the finished object, with the parts hidden
- **B** The parts separated along the way they fit together, so the assembly order is clear
- **C** The object from directly above only
- **D** The object cut in half to show the material inside

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11 **In the right triangle shown, the side adjacent to a 40° angle at B is 9.0 cm. The length of the hypotenuse, to the nearest tenth, is**

- **A** 6.9 cm
- **B** 7.6 cm
- **C** 11.7 cm
- **D** 14.0 cm

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12 **A kite string is 50 m long and makes an angle of 60° with the ground. The height of the kite above the ground, to the nearest tenth, is**

- **A** 25.0 m
- **B** 28.9 m
- **C** 86.6 m
- **D** 43.3 m

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13 **A roof rises from the edge of a building to a centre ridge. The horizontal distance from the edge to the ridge is 4.0 m, and the roof makes an angle of 30° with the horizontal. The height of the ridge above the edge, to the nearest tenth, is**

- **A** 2.3 m
- **B** 2.0 m
- **C** 3.5 m
- **D** 6.9 m

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14 **A real car is 4.4 m long. A model of the car is built to a scale of 1:24. The length of the model, to the nearest tenth, is**

- **A** 5.5 cm
- **B** 18.3 cm
- **C** 24.0 cm
- **D** 105.6 cm

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15 **A floor plan uses a scale of 1:100. A room on the plan measures 5 cm by 4 cm. The actual area of the room is**

- **A** 2 m^2
- **B** 200 m^2
- **C** 20 m^2
- **D** 0.20 m^2

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16 **A soup can is a cylinder standing upright on a counter. Which description matches the front view of the can?**

- A A circle
- B A triangle
- C A circle inside a square
- D A rectangle taller than it is wide

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17 **A ladder reaches a point 3.6 m up a wall. Its foot is 1.2 m from the wall on level ground. The angle the ladder makes with the ground, to the nearest tenth of a degree, is**

- A 71.6°
- B 18.4°
- C 45.0°
- D 63.4°

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18 **In a right triangle, the hypotenuse is 15 in. and the side adjacent to an acute angle is 9 in. That acute angle, to the nearest tenth of a degree, is**

A 36.9°

B 53.1°

C 59.0°

D 31.0°

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19 **A flagpole is 20 ft tall. The angle of elevation of the sun, from the tip of the shadow to the top of the pole, is 50°. The length of the shadow on level ground, to the nearest tenth, is**

A 23.8 ft

B 15.3 ft

C 16.8 ft

D 12.9 ft

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20 **A loading ramp is 12 ft long and rises 2 ft from one end to the other. The angle the ramp makes with the horizontal, to the nearest tenth of a degree, is**

- A 80.4°
- B 45.0°
- C 19.5°
- D 9.6°

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21 **A model built to a scale of 1:10 has a volume of 30 cm³. The volume of the actual object is**

- A 30000 cm³
- B 3000 cm³
- C 300 cm³
- D 900 cm³

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22 **A traffic cone has a cone shape sitting on a flat square base, viewed from the side at eye level. Which description matches this side view?**

- A A circle on top of a rectangle
- B A triangle on top of a thin flat rectangle
- C A square on top of a triangle
- D One large circle

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23 **In the right triangle shown, the hypotenuse is 13 cm and one leg is 5 cm. The length of the other leg is**

- A 8 cm
- B 18 cm
- C 12 cm
- D 10 cm

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24 **A guy wire 20 m long runs from the top of a pole to an anchor in the ground, making an angle of 55° with the ground. The distance from the base of the pole to the anchor, to the nearest tenth, is**

- **A** 16.4 m
- **B** 28.6 m
- **C** 17.4 m
- **D** 11.5 m

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25 **On a map with a scale of 1:50000, two towns are 6 cm apart. The actual distance between the towns is**

- **A** 3.0 km
- **B** 0.30 km
- **C** 30 km
- **D** 300 km

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ANSWER KEY

1. A
2. B
3. C
4. D
5. A
6. B
7. C
8. D
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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