ALBERTA MATH 30-3 · UNIT 1 · 25 QUESTIONS

Precision, Accuracy and Tolerance — 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 **The graph shows the mass recorded each time the same toolbox is weighed four times on the same scale. The readings are very close to one another. This mainly shows that the scale has good**

- **A** precision, because repeated readings agree closely
- **B** accuracy, because the readings equal the true mass
- **C** tolerance, because the readings fall within a set range
- **D** uncertainty, because each reading might be wrong

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2 **Which measurement of a board is the most precise?**

- A 14.0 cm
- B 14.05 cm
- C 14 cm
- D 14.5 cm

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3 **A steel ruler is marked in millimetres. The precision of the ruler, which is the smallest unit it can measure, is**

- A 1 cm
- B 0.1 mm
- C 1 mm
- D 1 m

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4 **A machinist records a length of 23.47 cm. The number of decimal places in this measurement is**

- A 3
- B 1
- C 4
- D 2

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5 **A bolt must have a length of 50 mm with a tolerance of ± 2 mm. The acceptable range of lengths for the bolt is**

- A 48 mm to 52 mm
- B 49 mm to 51 mm
- C 50 mm to 52 mm
- D 46 mm to 54 mm

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6 **A shelf board must measure 12.0 cm ± 0.3 cm to fit a cabinet. A board is measured and found to be 12.4 cm long. The board is**

A acceptable, because 12.4 cm is within the tolerance

B not acceptable, because it is longer than the maximum of 12.3 cm

C not acceptable, because it is shorter than the minimum of 11.7 cm

D acceptable, because it is exactly 0.3 cm over the target

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7 **For a measuring tool, the uncertainty is taken to be half of the smallest division on its scale. A tape is marked every 0.2 cm. The uncertainty of a measurement made with this tape is**

A ± 0.2 cm

B ± 0.4 cm

C ± 0.1 cm

D ± 0.02 cm

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8 **A carpenter measures a board as 1.275 m. This length, to the nearest centimetre, is**

- A 1.27 m
- B 1.30 m
- C 12.8 m
- D 1.28 m

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9 **A technician must measure the thickness of a sheet of metal to the nearest 0.1 mm. The most suitable instrument is a**

- A tape measure
- B micrometer
- C metre stick
- D kitchen scale

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10 **A tape measure is marked in sixteenths of an inch. The precision of this tape measure is**

- **A** $\frac{1}{16}$ in.
- **B** $\frac{1}{8}$ in.
- **C** 1 in.
- **D** $\frac{1}{32}$ in.

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11 **A pipe must have a diameter of 80 mm with a tolerance of 5%. The acceptable range of diameters for the pipe is**

- **A** 75 mm to 85 mm
- **B** 79 mm to 81 mm
- **C** 80 mm to 84 mm
- **D** 76 mm to 84 mm

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12 **The true length of a countertop is 30.0 cm. Which of the following measurements of it is the most accurate?**

- A 29.1 cm
- B 31.2 cm
- C 30.2 cm
- D 28.7 cm

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13 **A roll of ribbon is 96 in. long. Its length, in feet, is**

- A 12 ft
- B 8 ft
- C 9.6 ft
- D 1152 ft

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14 **An extension cord is 2.5 m long. Its length, in centimetres, is**

- **A** 250 cm
- **B** 25 cm
- **C** 2500 cm
- **D** 0.25 cm

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15 **A vaccine fridge must be kept between 2°C and 8°C. The thermometer in the fridge reads 8.5°C. The temperature is**

- **A** acceptable, because 8.5°C is inside the allowed range
- **B** too cold, because it is below the minimum of 2°C
- **C** too warm, because it is 0.5°C above the maximum of 8°C
- **D** acceptable, because the tolerance allows an extra 1°C

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16 **A digital scale shows a mass of 0.075 kg for a package of spice. This mass, in grams, is**

- **A** 7.5 g
- **B** 750 g
- **C** 0.75 g
- **D** 75 g

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17 **Which instrument is the most precise?**

- **A** a tape marked to the nearest centimetre
- **B** a digital caliper marked to the nearest 0.01 mm
- **C** a ruler marked to the nearest millimetre
- **D** a tape marked to the nearest $\frac{1}{16}$ in.

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18 **A bag of flour is labelled 1.00 kg with a tolerance of ± 0.02 kg. The minimum acceptable mass of a bag is**

- A 0.98 kg
- B 1.02 kg
- C 0.80 kg
- D 0.02 kg

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19 **A jug holds exactly 100 mL of water. A student measures the volume four times and gets 88 mL, 89 mL, 88 mL, and 89 mL. These measurements are best described as**

- A accurate but not precise
- B both accurate and precise
- C neither accurate nor precise
- D precise but not accurate

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20 **A measurement on a tape is 2 in. plus 6 sixteenths of an inch. Written as a mixed number in lowest terms, this measurement is**

- **A** $2\frac{6}{8}$ in.
- **B** $3\frac{3}{8}$ in.
- **C** $2\frac{3}{8}$ in.
- **D** $2\frac{1}{3}$ in.

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21 **A machined shaft must have a diameter of 25.00 mm ± 0.05 mm. The maximum acceptable diameter of the shaft is**

- **A** 24.95 mm
- **B** 25.05 mm
- **C** 25.50 mm
- **D** 25.005 mm

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22 **A tape reads to the nearest 0.1 cm. A length is calculated to be 18.46 cm. The length that should be reported is**

- **A** 18.4 cm
- **B** 18.46 cm
- **C** 18.0 cm
- **D** 18.5 cm

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23 **A door is 80 in. tall. Using 1 in. = 2.54 cm, its height, in centimetres, is**

- **A** 203.2 cm
- **B** 31.5 cm
- **C** 82.54 cm
- **D** 2032 cm

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24 **A serving of cereal must have a mass of 450 g ± 10 g. Which of the following masses is acceptable?**

- A 438 g
- B 462 g
- C 455 g
- D 430 g

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25 **A length is reported as 36.4 cm ± 0.1 cm. The actual length could be any value between**

- A 36.0 cm and 36.8 cm
- B 36.3 cm and 36.5 cm
- C 36.4 cm and 36.5 cm
- D 35.4 cm and 37.4 cm

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ANSWER KEY

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

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