MASSACHUSETTS GEOMETRY · FINAL EXAM · 50 QUESTIONS

Final Exam — 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 a triangle, a midsegment is parallel to a base of length 14. The length of the midsegment is

A 7

B 14

C 28

D 3.5

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2 **Two secants meet outside a circle. One has an outside segment of 4 and a whole length of 18. The other has an outside segment of 6. The whole length of the second secant is**

- **A** 18
- **B** 6
- **C** 9
- **D** 12

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3 **In a right triangle, the side adjacent to an acute angle is 12 and the hypotenuse is 13. The cosine of the angle is**

- **A** $\frac{5}{13}$
- **B** $\frac{12}{13}$
- **C** $\frac{12}{5}$
- **D** $\frac{13}{12}$

Understand It with Pulse | Flag a mistake

4 **The data are 3, 5, 7, 8, 9, and 12. The median is**

- A 7
- B 8
- C 7.5
- D 9

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5 **Two triangles have all three pairs of corresponding sides equal. The congruence criterion that applies is**

- A SSS
- B SAS
- C ASA
- D AAS

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6 **A radius drawn to a point of tangency makes an angle with the tangent of**

- A 45°
- B 180°
- C 60°
- D 90°

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7 **In a right triangle, an angle measures 45° and the hypotenuse is 10. The opposite side, to one decimal place, is about**

- A 5
- B 10
- C 14.1
- D 7.1

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8 **The data are 2, 4, 4, 4, 5, 5, 7, and 9. The population standard deviation is**

A 4

B 1.4

C 2

D 5

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9 **Triangle ABC is similar to triangle DEF. Angle A measures 35° and angle B measures 75°. Angle E measures**

A 75°

B 35°

C 70°

D 110°

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10 **A tangent segment and a secant meet outside a circle. The secant has an outside segment of 4 and a whole length of 9. The tangent segment has length**

- **A** 3
- **B** 9
- **C** 6
- **D** 12

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11 **A tree is 20 m from an observer. The angle of elevation to the top is 30°. The height of the tree, to one decimal place, in metres, is about**

- **A** 11.5
- **B** 34.6
- **C** 10
- **D** 20

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12 Two fair coins are tossed. The probability of two heads is

- **A** $\frac{1}{2}$
- **B** $\frac{3}{4}$
- **C** $\frac{1}{3}$
- **D** $\frac{1}{4}$

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13 Under the translation (x + 3, y - 2), the point (-1, 5) maps to

- **A** (2, 3)
- **B** (-4, 7)
- **C** (2, 7)
- **D** (-4, 3)

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14 A circle has radius 4. Its area, to one decimal place, is about

- A 25.1
- B 12.6
- C 50.3
- D 100.5

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

- A 4
- B 8.6
- C 12
- D 6.2

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16 **A bag has 3 red balls and 2 blue balls. Two balls are drawn without replacement. The probability both are red is**

- A 0.6
- B 0.36
- C 0.3
- D 0.5

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17 **The point (3, -4) reflected across the x -axis maps to**

- A (-3, -4)
- B (-3, 4)
- C (4, 3)
- D (3, 4)

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18 **Two tangent segments are drawn to a circle from the same outside point. One tangent segment has length 7. The other tangent segment has length**

- A 7
- B 14
- C 3.5
- D 49

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19 **A rectangular prism measures 3 by 4 by 5. Its surface area is**

- A 60
- B 47
- C 94
- D 120

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20 A line of best fit is y = 2x + 3. The predicted value of y when x = 10 is

- A 20
- B 23
- C 13
- D 33

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21 Two right triangles have equal hypotenuses and one pair of equal legs. The congruence criterion that applies is

- A SSS
- B SAS
- C ASA
- D HL

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22 **The midpoint of the segment joining (2, 6) and (8, 2) is**

- A (5, 4)
- B (3, 2)
- C (10, 8)
- D (5, 2)

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23 **A cone has radius 4 and height 9. Its volume, to one decimal place, is about**

- A 452.4
- B 150.8
- C 50.3
- D 301.6

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24 **In a scatter plot, as x increases, y tends to decrease. The correlation is**

- A positive
- B none
- C negative
- D perfectly positive

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25 **Two similar triangles have corresponding sides 9 and 12. Another side of the smaller triangle is 15. The corresponding side is**

- A 20
- B 11.25
- C 15
- D 27

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26 The center of a circle with diameter endpoints (2, 3) and (10, 7) is

A (4, 2)

B (6, 5)

C (12, 10)

D (5, 6)

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

ANSWER _____

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28 **Adding a very large outlier to a data set usually**

A increases the median more than the mean

B leaves both the mean and median unchanged

C increases the mean more than the median

D changes the mode the most

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29 **Which transformation does NOT always map a figure to a congruent figure?**

A translation

B reflection

C rotation

D dilation with scale factor 3

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30 **A circle has radius 10. A sector with central angle 36° has area, to one decimal place, about ____**

ANSWER _____

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31 **In a right triangle, the side opposite an acute angle is 8 and the hypotenuse is 10. The sine of the angle is**

A 0.6

B 0.8

C 1.25

D 0.75

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32 **The data are 5, 10, 15, and 20. The mean is**

- A 10
- B 12.5
- C 15
- D 50

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33 **Two similar figures have a linear scale factor of 1:4. The smaller figure has area 5. The larger area is**

- A 20
- B 9
- C 125
- D 80

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34 An inscribed angle measures 55°. Its intercepted arc measures

- A 55°
- B 27.5°
- C 110°
- D 165°

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35 In a right triangle, an angle measures 30° and the hypotenuse is 14. The opposite side is

- A 7
- B 14
- C 12.1
- D 3.5

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36 The data are 1, 3, 5, 7, 9, 11, and 13. The first quartile is 3 and the third quartile is 11. The interquartile range is

- A 8
- B 10
- C 4
- D 12

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37 An exterior angle of a triangle measures 130°. One remote interior angle measures 50°. The other remote interior angle measures

- A 50°
- B 130°
- C 180°
- D 80°

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38 **Two chords intersect inside a circle. The segments of one chord are 5 and 6, and one segment of the other chord is 10. The other segment is**

A 30

B 15

C 3

D 10

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

A 2

B 12.8

C 18

D 6

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40 **A bag has 5 red balls and 5 blue balls. Two balls are drawn without replacement. The probability both are blue, to two decimal places, is about**

- A 0.25
- B 0.22
- C 0.5
- D 0.2

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41 **The point (3, -2) rotated 180° about the origin maps to**

- A (-3, 2)
- B (3, 2)
- C (-2, 3)
- D (2, -3)

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42 **A circle has radius 12. An arc with central angle 30° has length, to one decimal place, about**

- A 75.4
- B 12.6
- C 6.3
- D 37.7

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43 **A rectangular prism measures 2 by 3 by 6. Its surface area is**

- A 36
- B 72
- C 108
- D 18

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44 **A line of best fit is y = -3x + 20. The predicted value of y when x = 5 is**

A 35

B 5

C -5

D 15

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45 **The point (-5, 2) reflected across the y -axis maps to**

A (-5, -2)

B (5, -2)

C (2, -5)

D (5, 2)

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46 The circle $(x - 5)^2 + (y + 2)^2 = 49$ has center

A (5, 2)

B (-5, -2)

C (5, -2)

D (-5, 2)

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47 A cone has radius 3 and height 10. Its volume, to one decimal place, is about ____

ANSWER _____

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48 **Heights are normally distributed with mean 50 and standard deviation 10. About what percent of values are between 30 and 70?**

A 68%

B 95%

C 99.7%

D 50%

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49 **The remote interior angles of a triangle measure 65° and 45°. The exterior angle at the third vertex measures**

A 20°

B 110°

C 65°

D 155°

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50 **The distance between (0, 3) and (4, 0) is ____**

ANSWER

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ANSWER KEY

1.	A	**18.**	A	**35.**	A
2.	D	**19.**	C	**36.**	A
3.	B	**20.**	B	**37.**	D
4.	C	**21.**	D	**38.**	C
5.	A	**22.**	A	**39.**	B
6.	D	**23.**	B	**40.**	B
7.	D	**24.**	C	**41.**	A
8.	C	**25.**	A	**42.**	C
9.	A	**26.**	B	**43.**	B
10.	C	**27.**	12	**44.**	B
11.	A	**28.**	C	**45.**	D
12.	D	**29.**	D	**46.**	C
13.	A	**30.**	31.4	**47.**	94.2
14.	C	**31.**	B	**48.**	B
15.	D	**32.**	B	**49.**	B
16.	C	**33.**	D	**50.**	5
17.	D	**34.**	C		

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