The incentre and angle bisectors worksheet – Grade 10

Grade 10 · Mixed level · 20 questions · **Version X4373**

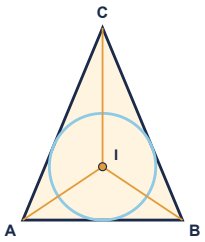
Name: _____ Date: _____ Score: ___ / 20

Scan to check answers + earn stars

Write it like (−3, 5).

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1. Which lines meet at the incentre?

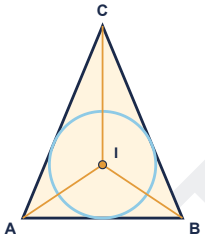


A. Angle bisectors **B.** Medians **C.** Altitudes **D.** Perpendicular bisectors

2. An angle bisector cuts ∠A = 58° in two. What is each part, in degrees?

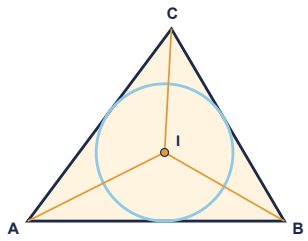
   Answer: _____ °

3. The incentre is the same distance from what?



A. All three sides **B.** All three vertices **C.** All three midpoints **D.** The centroid

4. A triangle has an area of 84 and a semi-perimeter of 21. What is the inradius?



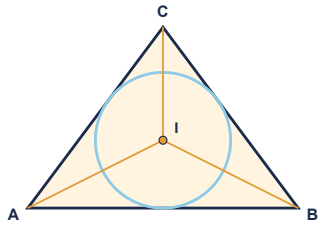
   Answer: _____

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5. A right triangle has sides 9, 12 and 15. What is its inradius?

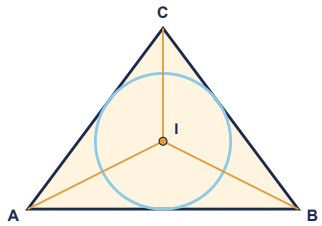
   Answer: _____

6. A triangle has an inradius of 6 and a semi-perimeter of 15. What is its area?



   Answer: _____

7. A triangle has an inradius of 7 and a semi-perimeter of 40. What is its area?



   Answer: _____

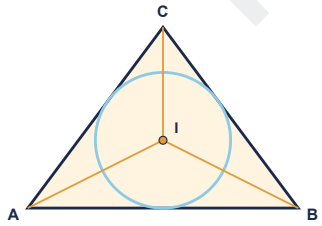
8. A triangular park has sides 70 m, 240 m and 250 m. What is the radius of the largest circular pond that fits inside, in metres?

   Answer: _____ m

9. A town wants a fountain the same distance from three straight roads that form a triangle. Which point should it use?

   A. The incentre **B.** The circumcentre **C.** The centroid **D.** The orthocentre

10. I is the incentre of $\triangle ABC$, and $\angle A = 85°$. What is $\angle BIC$, in degrees?



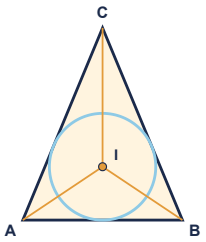
    Answer: _____ °

11. From the corners of a triangle, the tangent lengths to its incircle are 6, 9 and 3. What are the sides' total, the perimeter?

    Answer: _____

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12. A triangle has sides 13, 13 and 10 and area 60. What is its inradius? Give your answer to two decimal places.



Answer: _____

13. From the corners of a triangle, the tangent lengths to its incircle are 9, 5 and 8. What are the sides' total, the perimeter?

Answer: _____

14. A triangular park has sides 200 m, 210 m and 290 m. What is the radius of the largest circular pond that fits inside, in metres?

Answer: _____ m

15. Sides are 17, 17 and 16. Which tangent length comes from the vertex between the first and third sides?

Answer: _____

16. I is the incentre of $\triangle ABC$, and $\angle BIC = 115°$. What is $\angle A$, in degrees?

Answer: _____ °

17. A right triangle has its right angle at (0, 0) and legs 9 and 12 along the axes. Find its incentre.

Answer: _____

18. A triangle has an inradius of 3 and a perimeter of 42. What is its area?

Answer: _____

19. An isosceles triangle has sides 13, 13 and 10. What is its inradius? Give your answer to two decimal places.

Answer: _____

20. A right triangle has its right angle at (0, 0) and legs 8 and 15 along the axes. Find its incentre.

Answer: _____

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Answer key · Version X4373

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1. **A (Angle bisectors)**
2. **29**
3. **A (All three sides)**
4. **4**
5. **3**
6. **90**
7. **280**
8. **30**
9. **A (The incentre)**
10. **132.5**
11. **36**
12. **3.33**
13. **44**
14. **60**
15. **8**
16. **50**
17. **(3, 3)**
18. **63**
19. **3.33**
20. **(3, 3)**

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