

Answers must be written in the answer blank provided. All students must write legibly in the correct blanks on the answer sheet and in simplest form. **Exact** answers are to be given unless otherwise



4. In the diagram, $\overline{EB} \perp \overline{AC}$ and points $A, B,$ and C are collinear. \overline{BF}



bisects $\angle GFE$. If $\angle GFE = 38^\circ$ and $\angle GED = 44^\circ$, find the

5. In $\triangle ABC$, $\angle A = 100^\circ$, $\angle B = 30^\circ$, and $\angle C = 70^\circ$. Find the

8. If the smaller base of a trapezoid is increased by 4 and the larger base is increased by 8, the area of the

10. The distance between two points is 10. One point is at (3, 4) and the other is at (x, y). Find the value of $x^2 + y^2$.

19. If $\frac{a}{3-\sqrt{3}} = \frac{b}{c+d}$ where $a, b, c,$ and d are integers and $a \neq 0$, find the minimum value of $a^2 + b^2 + c^2 + d^2$.
20. Circle A has center $(6, -2)$ and radius 5. Circle B has center $(-3, 4)$ and radius 3. Find the exact length of the

State of Oregon Mathematical Competition
Individual Student Answer Sheet

2

12

5. _____

15. _____

6. _____

16. _____

7. _____

17. _____

8. _____

18. _____

10. _____

20. _____

Dollar sign optional

1000

12

2

21

Must be this

2

7. 342

Dollar sign optional

17. 1000

8. 3

18. 1680

9. 507

19. 324

10. 360

20. $\sqrt{53}$ Must be in this form