

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 the diagram, $\angle GFE = 38^\circ$ and $\angle GED = 44^\circ$. Find the

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

10. Find the integer solutions of the system of equations $x^2 + y^2 = 10$ and $x + y = 4$.

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 $|a|$.

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

John of St. Thomas: Mathematical Composition
Individual Student

2.

12.

5. _____

15. _____

6. _____

16. _____

7. _____

17. _____

8. _____

18. _____

10. _____

20. _____

7. 342 Dollar sign optional

17. 1000

8. 3

18. 1680

9. 507

19. 324

10. 360

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