

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. Let A be the area of a triangle with side lengths 25, 25, 48 and let B be the area of a triangle with side lengths 20, 20, 20. Compute $A - B$, rounding your answer to the nearest integer. You may use the approximation $\sqrt{3} \approx 1.732$.

9. Let $ABCD$ be a trapezoid with $\overline{AB} \parallel \overline{CD}$. Suppose that $AB = BC$, that $\angle BCD = 20^\circ$, and that $\angle CDA = 133^\circ$. Find $\angle DAC$.

10. The smallest base in which 2025 represents a perfect square is base ten, with $2025 = 45^2$. The next largest base with this property is a prime number p satisfying $2025_p = (7\mathbf{I}_p)^2$, where the letter \mathbf{I} represents the value 18 when used as a digit. What is the value of p ?

1. 16
2. $168/25 = 6\frac{18}{25} = 6.72$
3. 3
4. 67°
5. 90°
6. 2
7. 45°
8. -5
9. 37°
10. 29