Trigonometry	**Name:**
Study Guide 12	**Class:**
Due Date:	**Score:**

No Work ⇔ No Points

Use Pencil Only ⇔ Be Neat & Organized

1. **(2 points) Find the area of the triangle** ABC **with** $b = 8.5$ **cm,** $c = 8.5$ **cm, and** $\angle A = 100°$.

    1. _____

2. **(4 points) Find the remaining parts of the triangle** ABC **with** $\angle B = 100°$, $\angle C = 45°$, **and** $c = 6.5$ **ft.**

    2. _____

3. **(2 points) Find the area of the triangle** ABC **with** $a = 5$ **ft,** $b = 12$ **ft, and** $\angle C = 125°$.

    3. _____

4. **(3 points) Find the area of the triangle** ABC **with** $a = 8$ **ft,** $b = 12$ **ft, and** $c = 18$ **by using the Heron's formula**

    4. _____

5. **(4 points)** **Find the remaining parts of the triangle** ABC **with** $\angle A = 35°$, $a = 5$, **and** $b = 8$ **ft.**

5. _____

6. **(4 points)** **Find the remaining parts of the triangle** ABC **with** $\angle B = 25°$, $a = 6$, **and** $c = 10$ **ft.**

6. _____

7. **(5 points)** **From a point at ground level, the angle of elevation to the top of the mountain was** $32°$**,and if you get two kilometers further back from the mountain, the angle of elevation becomes** $10°$**. Use this information to find the height of the mountain. Detailed drawing required.**

7. _____

8. **(5 points) Observers in two towns on the same side of a mountain have angle of elevation $50°$ and $25°$. Find the horizontal distance between the cities if the height of the mountain is 8500 ft. Detailed drawing required.**

8. _____

9. **(5 points) A surveyor wishes to find the distance between two inaccessible points A and B on opposite sides of a lake. While standing at point C, she finds that $b = 259$ m and $a = 423$ m, and the angle ACB measures $132°40'$. Find the distance between A and B to the nearest meters. Detailed drawing required.**

9. _____

10. **A boy is rotating a stone in a 5-ft long sling at the rate of 25 revolutions every 10 seconds.**

    (a) **(2 points) Find the exact value of its angular speed ω in rad/minute by using $\omega = \dfrac{\theta}{t}$.**

(a) _____

    (b) **(2 points) Find the exact value of its linear speed v in ft/minute by using $v = r\omega$.**

(b) _____

11. **Given** $\sin x = \dfrac{4}{5}$, $\cos y = -\dfrac{7}{25}$, x **is in quadrant II, and** y **is in quadrant III.**

    (a) (3 points) Draw two different right triangle and clearly label them.

    (b) (3 points) Find the exact value of $\cos \dfrac{x}{2}$.

    (b) _____

    (c) (3 points) Find the exact value of $\sin(x - y)$.

    (c) _____

    (d) (3 points) Find the exact value of $\tan(x + y)$.

    (d) _____