1. Solve triangle ABC.

γ = 81$°$, c = 11, b = 12.

α = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

β = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

a = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A straight road makes an angle of 22$°$ with the horizontal. Form a certain point P on the road, the angle of elevation of an airplane at point A is 54$°. $ At the same instant, from another point Q, 70 meters farther up the road, the angle of elevation is 65$°$. Approximate the distance from P to the airplane.



1. A surveyor notes that the direction from point A to point B is S63$°$W and the direction from A to point C is S38$°$W. The distance from A to B is 206 yards, and the distance from B to C is 341 yards. Approximate the distance from A to C.
2. Solve triangle ABC.

α = 60$°, $b = 20, c = 33.

1. Solve triangle ABC.

a = 2.0, b = 3.0, c = 4.5

1. A triangular field has sides of lengths a, b, and c (in yards). Approximate the number of acres in the field (1 acre = 4840 yd2).

a = 320, b = 350, c = 500

1. The rectangular box shown below in the figure has dimensions a x b x c. Suppose that a = 7”, b = 5”, and c = 3”. Approximate the angle θ formed by a diagonal of the base and a diagonal of the 5” x 3” side.



1. A rhombus has sides of length 120 cm, and the angle at one of the vertices is 70$°$. Approximate the lengths of the diagonals to the nearest tenth of a cm.
2. The vectors **a** and **b** represent two forces acting at the same point, and $θ$ is the smallest positive angle between **a** and **b**. Approximate the magnitude of the resultant force.

||a|| = 47 lbs, ||b|| = 79 lbs, $θ$ = 120$°$

1. Find a unit vector that has the same direction as the vector **a** = (0, 5).
2. Find the angle between the two vectors <-2, 6> and <-8, 9>.
3. Find i536
4. Express the complex number 10$\sqrt{3}$ + 10i in trig form with 0 ≤ θ ≤ 2π.
5. Use trig forms to find z1z2 and $\frac{z\_{1}}{z\_{2}}$.

z1 = 2i, z2 = -3i

1. Find the two square roots of -9i.
2. Find the solutions of the equation x3 + 343i = 0.

Helpful Hints:

$\frac{a∙b}{|\left|a\right||∙|\left|b\right||}$ = cos θ $\frac{z\_{1}}{z\_{2}} $ = $\frac{r\_{1}}{r\_{2}} $[cos(θ1 - θ2) + i sin (θ1 - θ2)]

compba = $\frac{a ∙ b}{|\left|b\right||} $ wk = $\sqrt[n]{r}$ [cos ($\frac{θ+2πk}{n}$) + i sin($\frac{θ+2πk}{n}$)]

z1z2 = r1r2 [cos(θ1 + θ2) + i sin (θ1 + θ2)] [r (cos θ + i sin θ)]n = rn (cos n$ ∙$ θ + i sin n $∙$ θ)