CMGT 350	Quiz #1	Fall 2020

SHOW ALL WORK FOR FULL CREDIT. DO YOUR OWN WORK. DO NOT SHARE SOLUTIONS OR ANSWERS WITH ANYONE IN THIS CLASS. CHEATERS WILL FAIL IMMEDIATELY.

Name: _____

1. Newton's law of gravitation can be expressed in equation form as:

$$F = G\frac{m_1 m_2}{r^2}$$

If F is a force, m_1 and m_2 are masses, and r is a distance, determine the dimensions of G.

2. What are the units of Force?

U.S.	
S.I.	

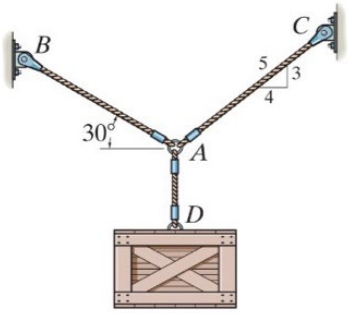
3. List the three properties required to completely define a force:

1.	
2.	
2.	

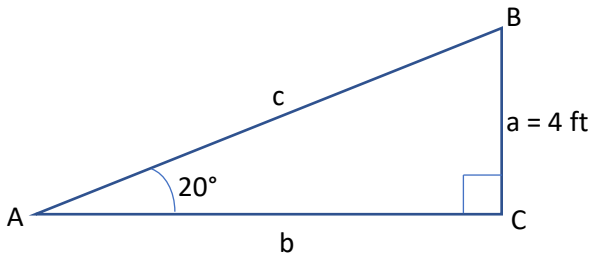
4. Find each angle measure to the nearest degree:

Tan Θ = 2.3812	Θ =
Sin A = 0.7233	A =
Cos B = 0.2953	B =
Cos B = - 0.6820	B =

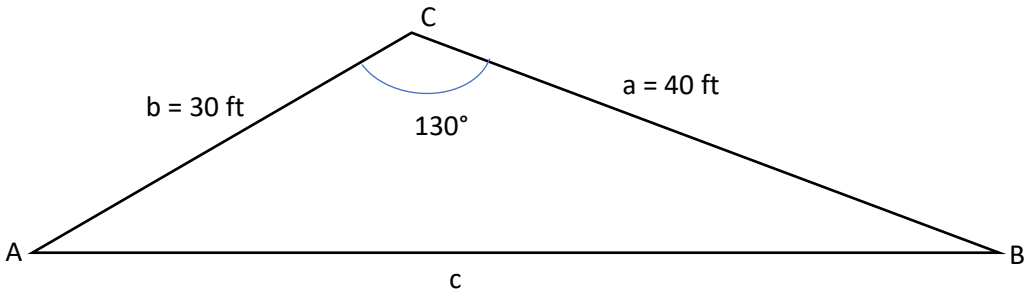
5. What type of force system is shown below?



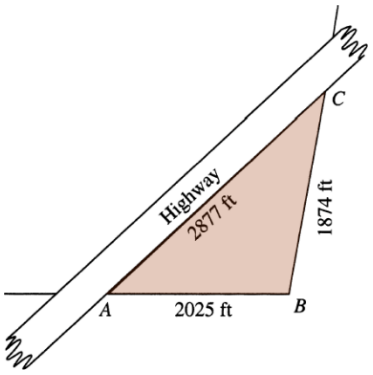
6. You need to build a ramp with the dimensions shown. Solve for the lengths of sides b and c and find angle B.



7. Determine the length of the unknown side c and angle A and angle B for the oblique triangle shown.



8. A highway cuts a corner from a parcel of land. Find angles A, B, and C.



Solution.

9. Solve for x

Tan (x + 24°) = 1.00

10. Solve for x

$12 + \frac{4(5x-15)}{5} = 15x + 22$

11. Solve the system of linear equations shown using the indicated method:
    A. Method of Elimination by Substitution

$$4x - y = -18 \quad (1)$$
$$X - 3y = -10 \quad (2)$$

Solution.

12. Method of Elimination by Addition and Subtraction

$$4x - y = -18 \quad (1)$$
$$X - 3y = -10 \quad (2)$$

Solution.

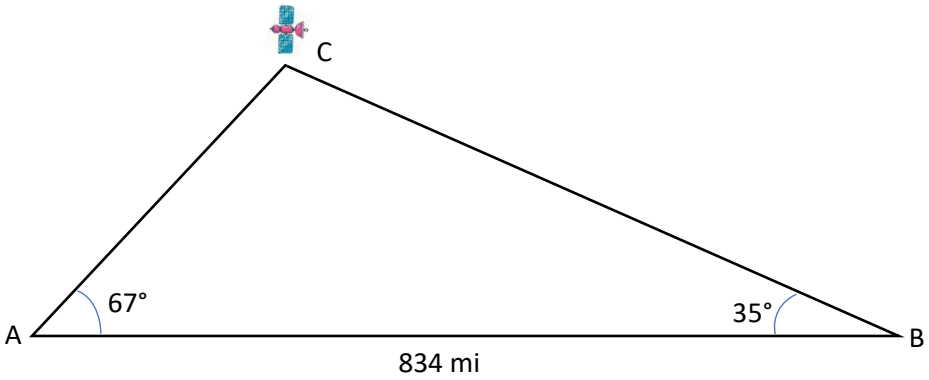
13. Cramer's Rule

$$4x - y = -18 \quad (1)$$
$$X - 3y = -10 \quad (2)$$

Solution.

14. Two points A and B on level ground are 834 mi apart. The International Space Station (ISS) is observed over a line from A to B to have an elevation from point A of 67° and from point B of 35° as shown.

    Determine the height of the ISS above the ground.



15. Solve the equation shown for the variable Cy

    2 kip x (6 ft) + 12 kip x (5 ft) – Cy x (12 ft) = 0