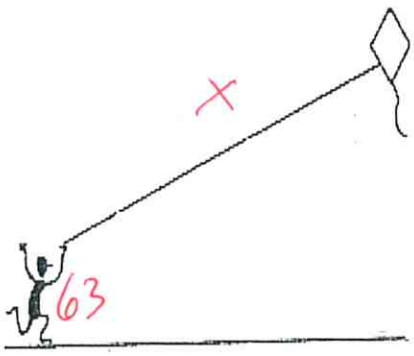
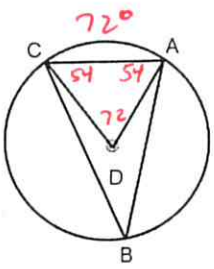
Sam is flying a kite. The kite string has an angle of elevation of 63^o. If Richard is standing 70 feet from Sam at a point on the ground directly below the kite, find the length of the kite string.



$\cos 63 = \frac{70}{x}$ $\quad x = \frac{70}{\cos 63}$ $\quad x = 154.2$ ft

a)
Find m< ABC if the m<CAD = 54 degrees.

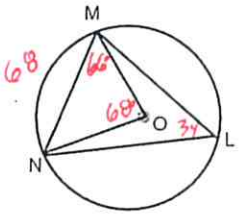


180 − 108 = 72

36°

D is the center of the circle

b) Find m<MNO if the m<MLN = 34 degrees

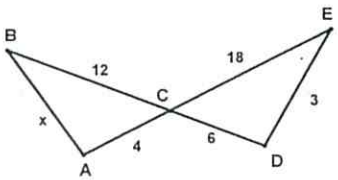


180 − 68 = 112 ; $\frac{112}{2} = 56$

O is the center of the circle

56°

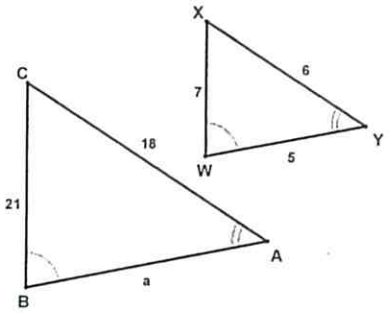
$\Delta ABC \sim \Delta DEC$



Which proportions can be used to solve for x? Explain why or why not for each proportion.

	Yes	No	Explain
$\frac{4}{6} = \frac{12}{18}$		X	x is not part of proportion
$\frac{6}{4} = \frac{x}{3}$		X	It would need to be $\frac{3}{x}$
$\frac{18}{12} = \frac{3}{x}$	X		18 and 3 are in the ΔEDC and 12 and x are corresponding in the ΔABC
$\frac{6}{4} = \frac{3}{x}$	X		Corresponding sides are correct
$\frac{18}{12} = \frac{6}{x}$		X	6 doesn't correspond to x
$\frac{4}{6} = \frac{3}{x}$		X	It would need to be $\frac{x}{3}$ since 4 + x are in the same Δ.

$\Delta BCA \sim \Delta WXY$



Which proportions can be used to solve for a? Explain why or why not for each proportion.

	Yes	No	Explain
$\frac{5}{a} = \frac{21}{7}$		X	a doesn't correspond to 7
$\frac{7}{21} = \frac{6}{18}$		X	no x in the prop.
$\frac{5}{a} = \frac{21}{6}$		X	5 doesn't correspond to 21
$\frac{5}{a} = \frac{7}{21}$	X		corresponding sides are correct
$\frac{5}{a} = \frac{18}{6}$		X	5 doesn't correspond to 18
$\frac{5}{a} = \frac{6}{18}$	X		corresponding sides are in correct position.

Find the volume of the shapes below.
Use proper units in your answer.

Shape	Area of Base	Height	Volume
Cylinder	25π ft^2	7 ft	$V = Bh$ $V = 549.8$ ft^3
Cone	25π ft^2	7 ft	$V = \frac{1}{3}Bh$ $V = \frac{1}{3}25\pi(7) = 183.3$ ft^3
Prism	36 ft^2	15 ft	$V = 36 \cdot 15$ $V = 540$ ft^3
Pyramid	36 ft^2	15 ft	$V = \frac{1}{3}36 \cdot 15$ $= 180$ ft^3

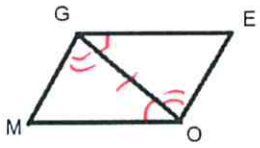
What is the difference in the volumes of the cylinder and the prism?

$549.8 - 540 = 9.8$ ft^3

What is the difference in the volumes of the cone and the pyramid?

183.3 ft$^3 - 180$ ft$^3 = 3.3$ ft^3

Given: GEOM is a parallelogram
Prove: $\overline{GE} \cong \overline{OM}, \overline{MG} \cong \overline{EO}$



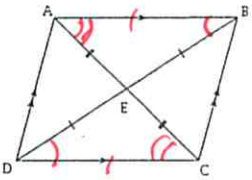
Statements	Reasons	
1. GEOM is a parallelogram	Given (a)	a
2. $\overline{GM} \parallel \overline{EO}, \overline{GE} \parallel \overline{MO}$	def of para (b)	b
3. $\angle EGO \cong \angle GOM$, $\angle MGO \cong \angle GOE$	alt int $\angle$'s (e)	e
4. $\overline{GO} \cong \overline{GO}$	reflexive (h)	h
5. $\Delta GEO \cong \Delta OMG$	ASA (m)	m
6. $\overline{GE} \cong \overline{OM}, \overline{MG} \cong \overline{EO}$	def of $\cong$ Δ's (p)	p

Use the following reasons to complete the proof. There are more reasons than needed.

a. Given
b. Definition of parallelogram.
c. When two parallel lines are intersected by a transversal, same side interior angles are congruent.
d. When two parallel lines are intersected by a transversal, same side interior angles are supplementary.
e. When two parallel lines are intersected by a transversal, alternate interior angles are congruent.
f. When two parallel lines are intersected by a transversal, alternate interior angles are supplementary.
g. Vertical Angles are congruent.
h. ~~Shared Side~~. reflexive property
i. Transitive Property of Congruence
j. SSS
k. AAA
l. SAS
m. ASA
n. AAS
o. AA~
p. Corresponding parts of congruent triangles are congruent (CPCTC) or Definition of Congruent Triangles.

One method that can be used to prove that the diagonals of a parallelogram bisect each other is shown below. There are 3 mistakes in the proof. Find and correct them.

Given: ABCD is a parallelogram
Prove: AE = CE and DE = BE



Statement	Reason
1. ABCD is a parallelogram	1. Given
2. AB is parallel to DC AD is parallel to BC	2. Definition of parallelogram
3. $\angle ABD \cong \angle CDB$, $\angle BAC \cong \angle DCA$	3. When two parallel lines are intersected by a transversal, ~~same side interior~~ angles are congruent. alt. int.
4. ~~$\overline{AE} \cong \overline{EC}$ and $\overline{DE} \cong \overline{EB}$~~ $\overline{AB} \cong \overline{DC}$	4. Opposite sides of a parallelogram are congruent
5. $\Delta DCE \cong \Delta BAE$	5. ~~AAA~~ ASA
6. $\overline{AE} \cong \overline{CE}, \overline{DE} \cong \overline{BE}$	6. CPCTC (def of $\cong$ Δ's)
7. AE = CE DE = BE	7. Definition of congruent segments