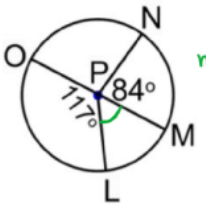
What other construction is also completed when constructing an square inscribed in a circle? A perpendicular bisector

What is the value of x if m∠LPM is 3x - 9?



$m\angle LPM = 180 - 117 = 63^\circ$

$3x - 9 = 63$

$3x = 72$

$x = 24$

If the length of an arc created in a circle that is broken into 4 equal parts is 24π, what is the radius of the circle?

$\frac{90}{360} = \frac{24\pi}{2\pi r}$

$\frac{1}{4} = \frac{12}{r}$

$r = 48$

A circle has a radius formed by two points, the center at (7,6) and a point on the circle (-1,6). Write an equation for the circle.

$d = \sqrt{(7-(-1))^2 + (6-6)^2}$

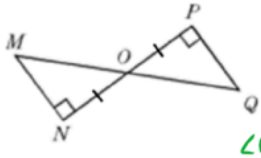
$d = \sqrt{64 + 0}$

$d = 8$

$r = 8$

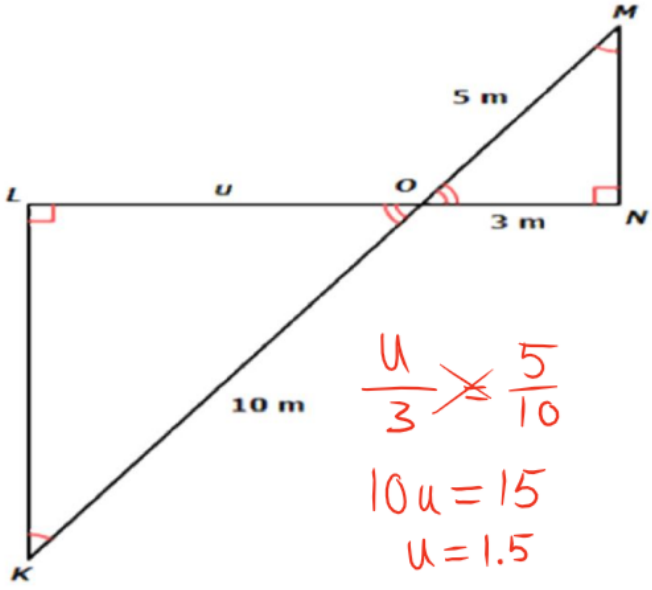
$(x-7)^2 + (y-6)^2 = 8^2$

Prove that POQ is congruent to NOM using a two-column proof.



Statement	Reason
$\angle QPO \cong \angle MNO$	Given
$\overline{PO} \cong \overline{NO}$	Given
$\angle POQ \cong \angle NOM$	Vert. ∠'s Thm.
$\triangle POQ \cong \triangle NOM$	ASA

Find the length of u.

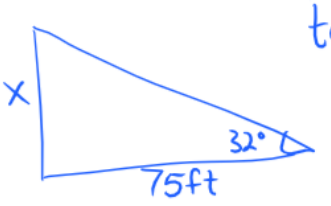


$\frac{u}{3} = \frac{5}{10}$

$10u = 15$

$u = 1.5$

When the angle of elevation to the sun is 32°, a tree casts a shadow that is 75 feet long. What is the height of the tree to the nearest foot?



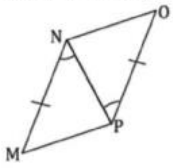
$\tan(32) = \frac{x}{75}$

$x = 75 \cdot \tan(32)$

$x = 46.87$ ft.

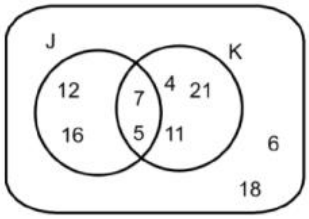
Finish the following proof.

Given: $\angle MNP \cong \angle OPN$, and $\overline{MN} \cong \overline{OP}$



Prove: $\overline{MP} \cong \overline{NO}$

Statements	Reasons
1. $\angle MNP \cong \angle OPN$	1. Given
2. $\overline{MN} \cong \overline{OP}$	2. Given
3. $\overline{NP} \cong \overline{PN}$	3. Reflexive Prop.
4. $\triangle MNP \cong \triangle OPN$	4. SAS
5. $\overline{MP} \cong \overline{NO}$	5. CPCTC



Find the following

$J^c = \{4, 21, 11, 6, 18\}$

$K = \{4, 21, 11, 7, 5\}$

$J \cup K = \{12, 16, 7, 5, 4, 21, 11\}$

What is the probability that a male would be chosen given that it is a dog?

	Dog	Cat	Total
Male	42	10	52
Female	9	39	48
Total	51	49	100

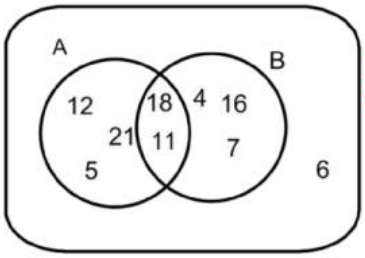
$P(m|d) = \frac{42}{51} = \frac{14}{17}$

What is the probability that a person chose vanilla given that they were a child?

What flavor of ice cream would you pick?			
	Chocolate	Vanilla	Neither
Children	40	22	15
Teens	12	16	45
Adults	55	54	10
Total	107	92	70

77

$P(V|C) = \frac{22}{77} = \frac{2}{7}$



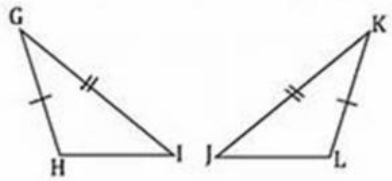
$(A \cap B) \cup (A^c \cap B)$

$\{18, 11\}$ $\{4, 16, 7\}$

$\{18, 11, 4, 16, 7\}$

Comple the following proof

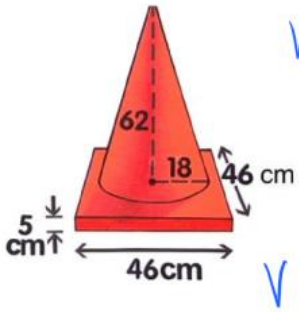
Given: $\overline{GH} \cong \overline{KL}$, $\angle G \cong \angle K$, and $\overline{GI} \cong \overline{KJ}$



Prove: $\overline{HI} \cong \overline{LJ}$

Statements	Reasons
1. $\overline{GH} \cong \overline{KL}$	1. Given
2. $\angle G \cong \angle K$	2. Given
3. $\overline{GI} \cong \overline{KJ}$	3. Given
4. $\triangle GHI \cong \triangle KLJ$	4. SAS
5. $\overline{HI} \cong \overline{LJ}$	5. CPCTC

Find the volume of the following figure.



$V_{cone} = \pi \frac{1}{3} (18)^2 62$

$= 6696\pi \approx 21,036.10\ cm^3$

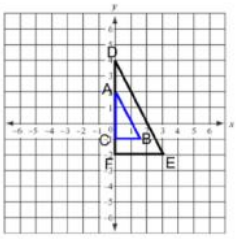
$V_{prism} = 46 \cdot 46 \cdot 5$

$= 10,580\ cm^3$

$V = 31,616\ cm^3$

What is the sin(47) equal to?

$\sin(47) = 0.73$



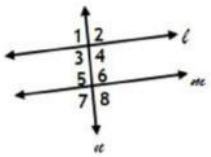
What is the scale factor if DEF is dilated to ABC?

$k = \frac{-1}{-2} = \frac{1}{2}$

Fill in the missing lines of this proof.

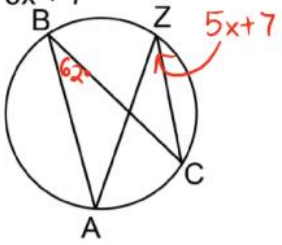
Given: ℓ is parallel to m

Prove: $\angle 2 \cong \angle 7$



Statements	Reasons
1. ℓ is parallel to m	1. Given
2. $\angle 2 \cong \angle 6$	2. Corresponding ∠'s Post.
3. $\angle 6 \cong \angle 7$	3. Vertical angles are ≅
4. $\angle 2 \cong \angle 7$	4. Transitive property of ≅

Find the value of x, if m∠ABC = 62 and m∠AZC = 5x + 7

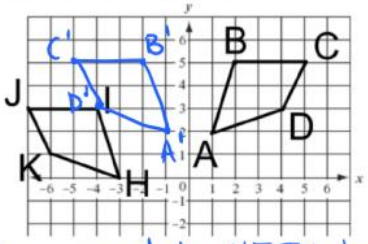


$5x+7=62$

$5x = 55$

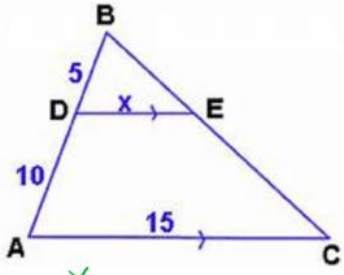
$x = 11$

What sequence of transformations would map ABCD onto HIJK?



ABCD can be mapped to HIJK by a reflection over the y-axis with a translation left 2 and down 2. A reflection then translation is a sequence of rigid motions. Rigid motions create congruent figures thus ABCD ≅ HIJK

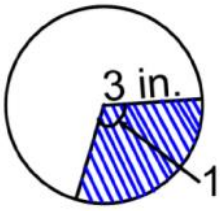
Find the value of x.



$\frac{5}{15} = \frac{x}{15}$

$x = 5$

Find the sector area of the shaded region.



$\frac{120}{360} = \frac{SA}{\pi(3)^2}$

$\frac{1}{3} = \frac{SA}{9\pi}$

$3SA = 9\pi$

$SA = 3\pi$

What is the equation of line perpendicular to the line y-3x = 12 and passes through point (4, 19)?

$y-3x = 12$

$y = 3x+12$

$m = 3$

$m = -\frac{1}{3}$ (4, 19)

$y-19 = -\frac{1}{3}(x-4)$

$y-19 = -\frac{1}{3}x + \frac{4}{3}$

$y = -\frac{1}{3}x + \frac{61}{3}$

The probability of a New York teenager owning a skateboard is 0.37, of owning a bicycle is 0.81 and of owning both is 0.36. If a New York teenager is chosen at random, what is the probability that the teenager owns a skateboard or a bicycle?

$P(S) = 0.37 \quad P(B) = 0.81 \quad P(S \text{ and } B) = 0.36$

$P(S \text{ or } B) = P(S) + P(B) - P(S \text{ and } B) = 0.37 + 0.81 - 0.36 = 0.82$

Match each term with its definition.

f. 1. Angle
c. 2. Line segment
a. 3. Ray
d. 4. Line

a. A part of a line that starts at an endpoint and extends forever in one direction.

b. A specific location in space, often represented by a dot.

c. A straight line which links two points without extending beyond them.

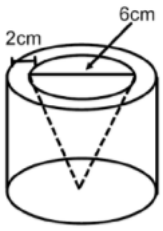
d. A straight pathway that is endless in both directions, has no thickness, and is comprised of points.

f. a figure formed by two rays with a common endpoint called a vertex.

Point A(-3,2) was transformed by a reflection over the x axis, then by (x+2, y-5). What are the new coordinates?

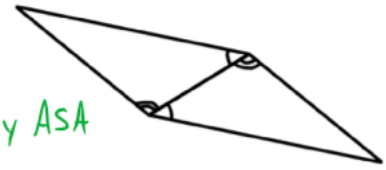
Reflection over x-axis
$A'(-3,-2)$
translation
$A''(-1,-7)$

Find the volume of the composite figure.



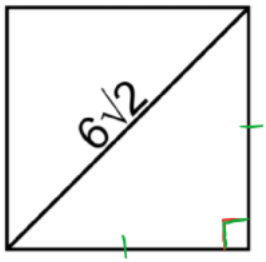
$V_{cylinder} = \pi 5^2 \cdot 9$
$= 225\pi \text{ cm}^3$
$V_{cone} = \frac{1}{3}\pi (3)^2 \cdot 9$
$= 27\pi \text{ cm}^3$
$V = 225\pi - 27\pi = 198\pi \text{ cm}^3$

Why are the two triangles congruent?



Congruent by ASA

Find the area of the following square.



$a^2 + b^2 = c^2$
$a^2 + a^2 = (6\sqrt{2})^2$
$2a^2 = 36(2)$
$2a^2 = 72$
$a^2 = 36$
$a = 6$

$A = 6 \cdot 6 = 36$

What is the coordinate of the point that splits segment with end points, (5, 4) and (10,14) ratio of 3:2?

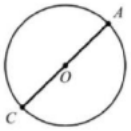
$(x,y) = \left(\frac{3(10)+2(5)}{3+2}, \frac{3(14)+2(4)}{3+2}\right)$
$\frac{30}{5}$ $\frac{10}{5}$ $\frac{42}{5}$ $\frac{8}{5}$

$(x,y) = (8, 10)$

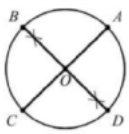
What is the next step in constructing a square in a circle

1. Mark a point anywhere on the circle and label it point A.

2. Using a straightedge, draw a diameter from point *A*. Label the other endpoint of the diameter as point *C*. This is diameter *AC*.



3. Construct a perpendicular bisector of AC through the center of circle O. Label the points where it intersects the circle as point B and point D.



4. Use a straight edge to connect ABCD to create a square.