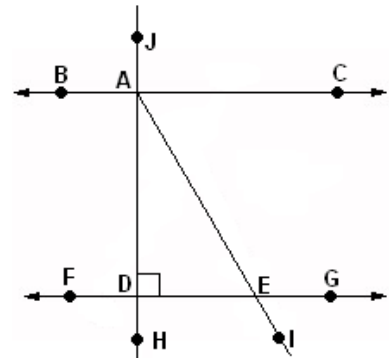


**Simplify all answers and show your work!**

- The sum of two supplementary angles is 180 degrees.
- The sum of two complementary angles is 90 degrees.
- For corresponding angles or alternate interior/exterior angles to be congruent, a transversal must cross what kind of lines? parallel
- Congruent triangles are the same size and have the same shape.
- What is the complement of a  $24^\circ$  angle?  $66^\circ$
- What is the supplement of a  $24^\circ$  angle?  $156^\circ$

Use the figure to the right to answer problems 7 - 13. Assume that  $\overline{BC} \parallel \overline{FG}$  and  $m\angle ADE = 90^\circ$ .

- List two right angles. Varies:  $\angle ADE, \angle ADF, \angle FDH,$  and  $\angle HDE$
- List a pair of vertical angles. Varies:  $\angle AED$  and  $\angle GEI$  are one example
- If  $m\angle CAE = 64^\circ$ , find the measures of the following.
  - $m\angle AED = \underline{64^\circ}$
  - $m\angle EAD = \underline{26^\circ}$
  - $m\angle GEI = \underline{64^\circ}$
  - $m\angle AEG = \underline{116^\circ}$
  - $m\angle FDH = \underline{90^\circ}$
  - $m\angle JAB = \underline{90^\circ}$
  - $m\angle DEI = \underline{116^\circ}$

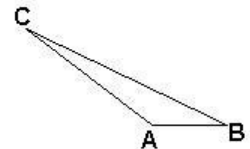


Fill in the blanks with corresponding, vertical, alternate exterior, alternate interior, complementary, or supplementary.

- $\angle AED$  and  $\angle GEI$  are vertical angles.
- $\angle DEA$  and  $\angle AEG$  are supplementary angles.
- $\angle CAE$  and  $\angle EAD$  are complementary angles.
- $\angle CAE$  and  $\angle GEI$  are corresponding angles.

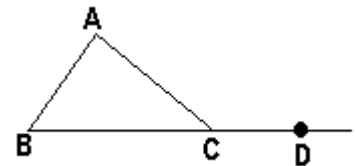
Given  $\triangle ABC$  below where  $m\angle BCA = 12^\circ$  and  $m\angle BAC = 121^\circ$ , answer problems 14 - 16.

- Find  $m\angle ABC = \underline{47^\circ}$ .
- Which side is the longest?  $\overline{BC}$
- Which side is the shortest?  $\overline{AB}$



Given the figure to the right where  $m\angle ACB = 2x$ ,  $m\angle ABC = 4x$ , and  $m\angle ACD = 6x$ , find the following.

- $x = \underline{22.5}$
- $m\angle ACB = \underline{45^\circ}$
- $m\angle ABC = \underline{90^\circ}$
- $m\angle ACD = \underline{135^\circ}$
- $m\angle BAC = \underline{45^\circ}$



Determine whether or not it is possible to make a triangle having the given side lengths. (Yes or No)

18. 3, 7, 6 Yes

19. 6.4, 8.9, 2.4 No

20. 12, 17, 5.1 Yes

19. The measure of  $\angle A$  is  $(3x + 15)^\circ$  and the measure of  $\angle B$  is  $(4x - 27)^\circ$ . If angles A and B are supplementary angles, find the following:

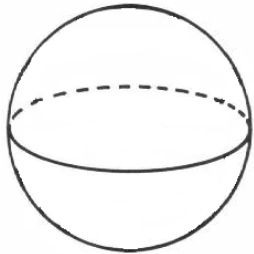
a)  $x = 27\frac{3}{7} \approx 27.429$

b)  $m\angle A = 97.29^\circ$

c)  $m\angle B = 82.71^\circ$

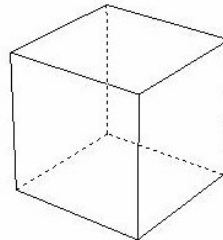
20. Find the volumes below:

a) Sphere having a diameter of 12 inches.



$904.78 \text{ in}^3$

b) Cube having an edge of 12 inches.



$1728 \text{ in}^3$

c) Which has the larger volume? The cube

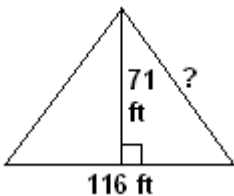
21. Le Grande Louvre is the glass pyramidal entrance to the Louvre museum in Paris, France. The base of the pyramid is a square with sides measuring 116 ft, and the perpendicular height of the pyramid is 71 ft.

a) What would the volume of the inside of the pyramid be?

$318,458.7 \text{ ft}^3$



b) What is the slant height of the pyramid?



$\approx 91.7 \text{ ft}$

c) Approximately how many feet<sup>2</sup> of glass were used to build the pyramid? (The four sides only; **not** the bottom!)

$\approx 21,269.5 \text{ ft}^2$

(This value is based on no rounding.)

22. A teepee has the shape of a cone. One teepee has a diameter of 10 feet and a slant height of 15 feet.

a) How much canvas is needed to cover the teepee?(Note: Don't include the bottom!)  $\approx 235.6 \text{ ft}^2$

b) If canvas is \$14.99 per foot, how much will the canvas for the teepee cost?  $\$3531.94$

(This value is based on no rounding.)