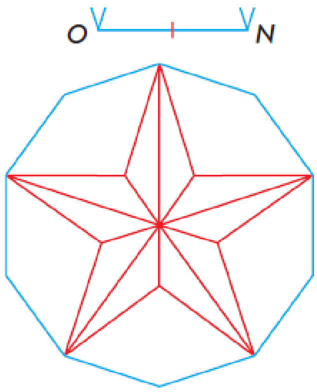
HOMEWORK... ???

Page 99: 1, 3, 4, 5, 10, 11, 16

HISTORY on Buckyball Do A, B and C

11. Sandy designed this logo for the jerseys worn by her softball team. She told the graphic artist that each interior angle of the regular decagon should measure 162°, based on this calculation:



Angle $= \dfrac{180°(n-2)}{n}$

$$S(10) = \frac{180°(10 - \cancel{1}\ 2)}{10}$$

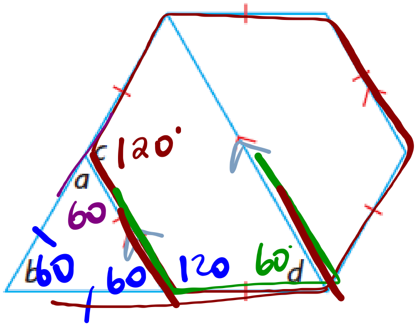
$$S(10) = \frac{\cancel{1620°}}{10} \quad 1440°$$

$$S(10) = \cancel{162°} \quad 144°$$

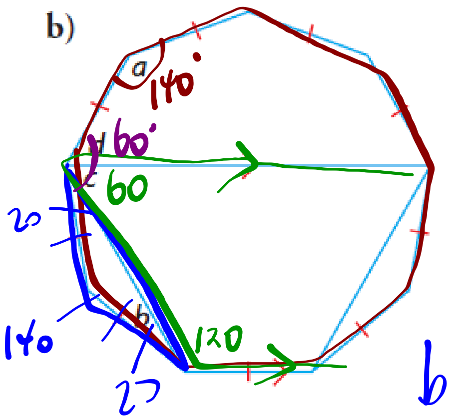
Identify the error she made and determine the correct angle.

16. In each figure, the congruent sides form a regular polygon. Determine the values of *a*, *b*, *c*, and *d*.

a)



b)



9 sided

$$a = \frac{180(9-2)}{9}$$

$a = 140°$

$$b = \frac{180-140}{2}$$

$b = 20$

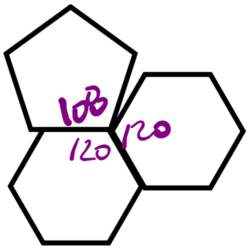
History | **Connection**

Buckyballs—Polygons in 3-D

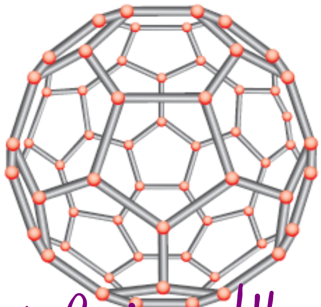
Richard Buckminster “Bucky” Fuller (1895–1983) was an American architect and inventor who spent time working in Canada. He developed the geodesic dome and built a famous example, now called the Montréal Biosphere, for Expo 1967. A spin-off from Fuller’s dome design was the buckyball, which became the official design for the soccer ball used in the 1970 World Cup.

In 1985, scientists discovered carbon molecules that resembled Fuller’s geodesic sphere. These molecules were named fullerenes, after Fuller.

The Montréal Biosphere and its architect



FIFA soccer ball, 197



Carbon molecule, C

Regular Pentagon/Hexagon

A. Identify the polygons that were used to create the buckyball.

B. Predict the sum of the three interior angles at each vertex of the buckyball. Check your prediction. 348°

C. Explain why the value you found in part B makes sense.

WARM-UP...

3) Think of a number
With the number in mind, do the following operations:
- ➪ double it
- ➪ add 4
- ➪ half it
- ➪ subtract 2

What is your answer?

Inductively:

11
22
26
13
11

Get back the #

Deductively:

n

$\frac{2n+4}{2}$

$n+\cancel{2}-\cancel{2}$

n

UNIT TEST... Chp. 1 - Inductive/Deductive

Tues

Chp. 2 - Angle Properties

REVIEW / PRACTICE TIME...

CHAPTER 1... Quiz

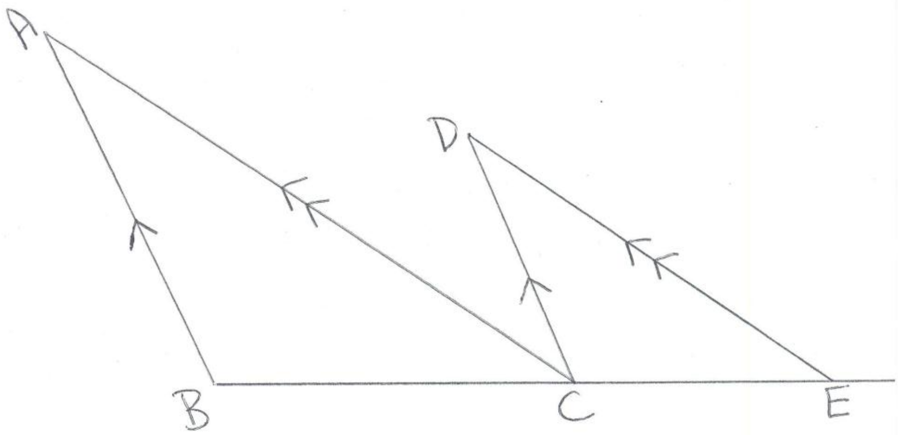
- p. 34: Mid Chp Review (FAQ)
- p. 35: Mid Chp Practice Ques.
- p. 59: Chp Review (FAQ)
- p. 61: Chp Practice (omit 1.7)
- p. 58: Practice Test

CHAPTER 2...

- p. 84: Mid Chp Review (FAQ)
- p. 85: Mid Chp Practice Ques.
- p. 105: Chp Review (FAQ)
- p. 106: Chp Practice
- p. 104: Practice Test

Prove that $\triangle ABC$ is similar to $\triangle DCE$

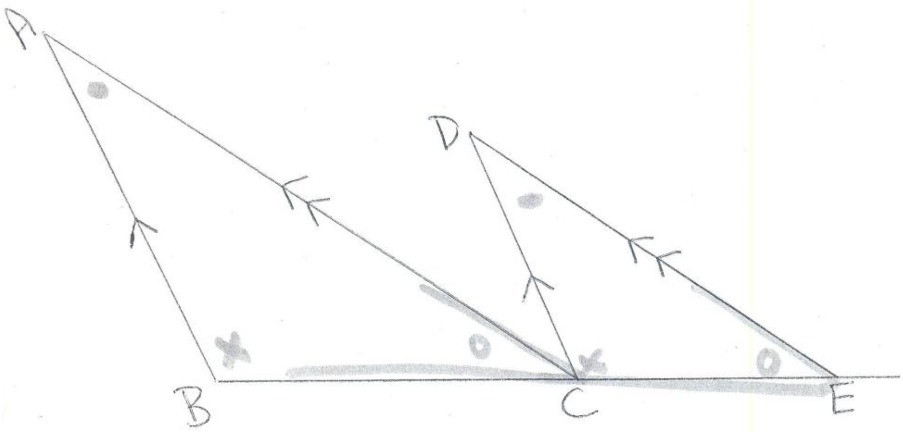
1



Statements	Justifications

Prove that $\triangle ABC$ is similar to $\triangle DCE$

1

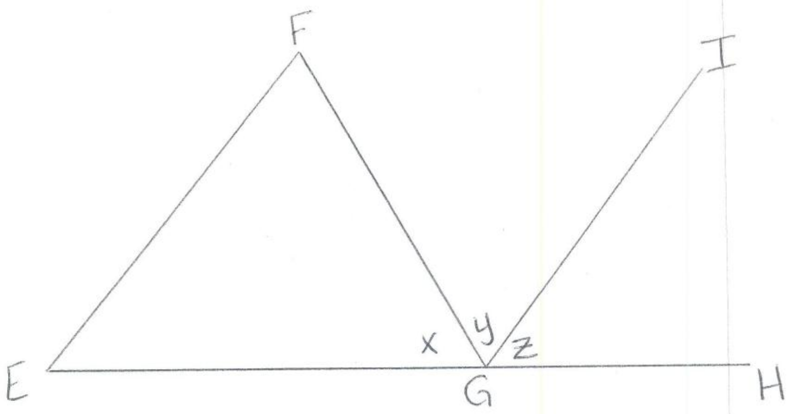


Statements	Justifications
$AB \parallel CD$	given
$AC \parallel DE$	given
$\angle ABC = \angle DCE$	Corresponding angles
$\angle BAC = \angle DCE$	alternate angles
$\angle BCA = \angle CED$	Corresponding angle
$\triangle ABC \sim \triangle DCE$	Corresponding angles are equal

In $\triangle EFG$, GI bisects $\angle FGH$

If $\angle E = \angle y$, then prove that $EF \parallel GI$

2

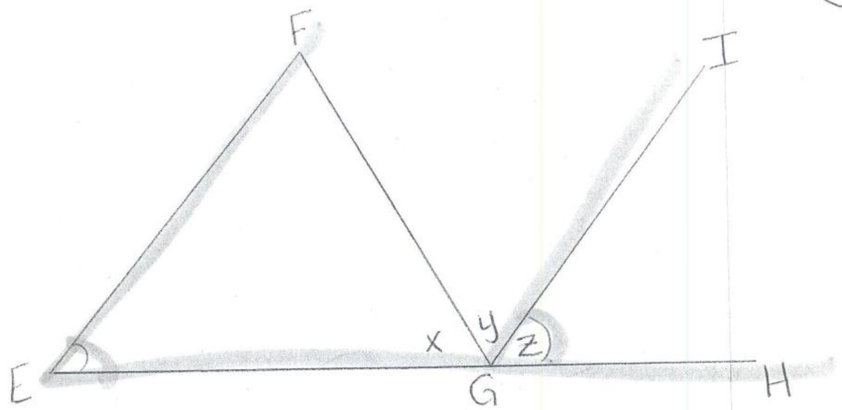


Statements	Justifications

In $\triangle EFG$, GI bisects $\angle FGH$

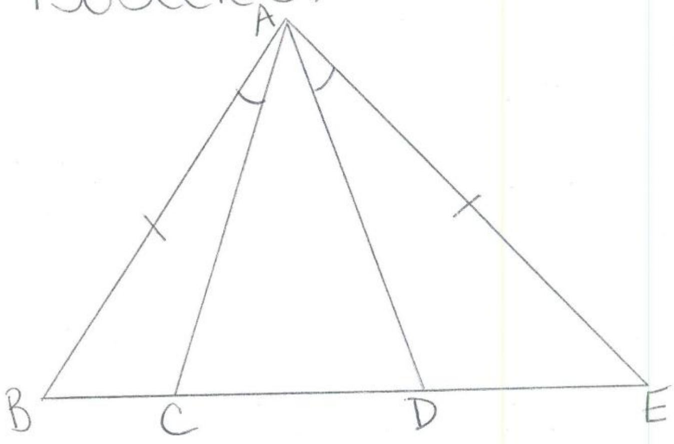
If $\angle E = \angle y$, then prove that $EF \parallel GI$

2



Statements	Justifications
$\angle y = \angle z$	given GI bisects $\angle FGH$
$\angle y = \angle E$	given
$\angle E = \angle z$	transitive
$EF \parallel GI$	corresponding angles are equal.

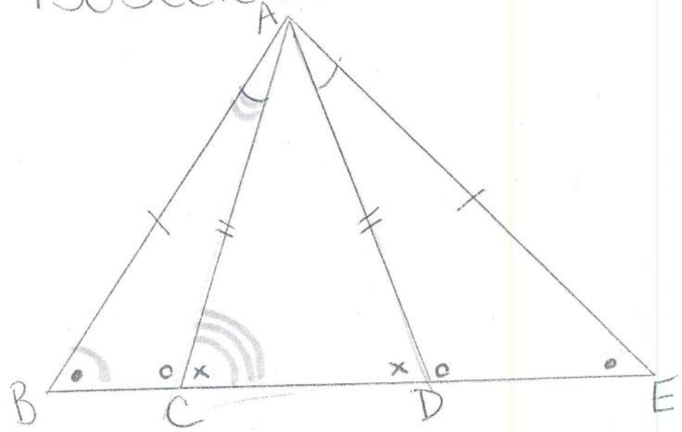
Prove that $\triangle ACD$ is isosceles.



Statements	Justifications

3

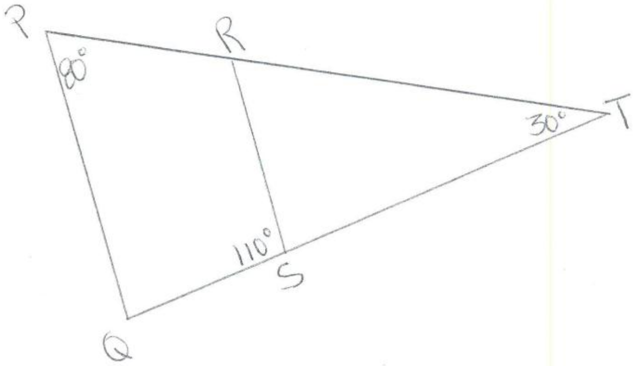
Prove that $\triangle ACD$ is isosceles.



Statements	Justifications
$BA = EA$	given
$\angle BAC = \angle EAD$	given
$\angle ABC = \angle AED$	isosceles triangle theorem.
$\angle BCA = 180 - \angle BAC - \angle ABC$	sum of angles in triangle
$\angle BCA = 180 - \angle EAD - \angle AED$	substitution
$\angle EDA = 180 - \angle EAD - \angle AED$	sum of angles in triangle
$\angle BCA = \angle EDA$	transitive
$\angle ACD = 180 - \angle BCA$	Supplementary
$\angle ADC = 180 - \angle EDA$	Supplementary
$\angle ADC = 180 - \angle BCA$	substitution.
$\angle ACD = \angle ADC$	transitive
$\triangle ACD$ is isosceles	base angles are equal.

(4)

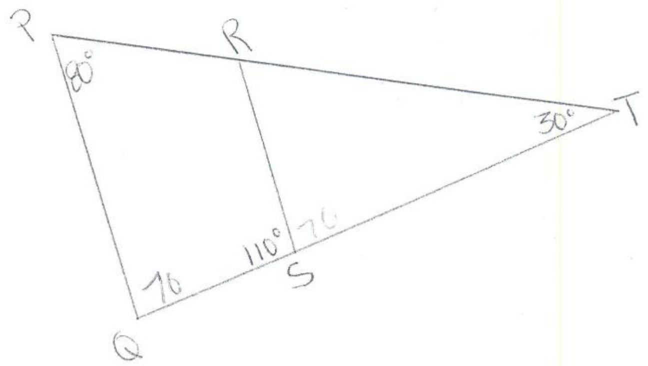
Prove PQ // RS



Statements	Justifications

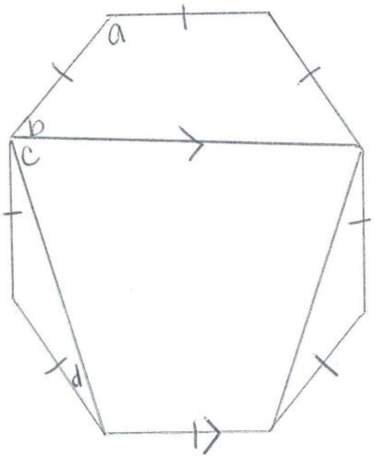
(4)

Prove $PQ \parallel RS$



Statements	Justifications
$\angle Q + \angle P + \angle T = 180°$	Sum of interior angles of a $\triangle$
$\angle Q + 80° + 30° = 180°$	Substitution
$\angle Q = 70°$	Subtraction.
$\angle QSR + \angle RST = 180°$	Supplementary angles
$\angle RST + 110° = 180°$	Substitution
$\angle RST = 70°$	Subtraction
$PQ \parallel RS$	Corresponding angles ($\angle Q$ and $\angle RST$ are equal)

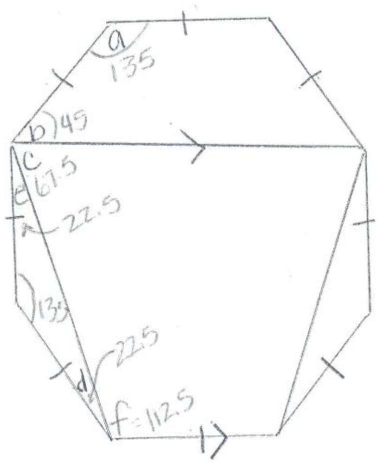
Determine the values of a, b, c, and d. (5)



Show all your work!

a= b= c= d=

Determine the values of a, b, c, and d. 5



Show all your work!

→ $S(n) = 180(n-2)$
$S(8) = 180(8-2)$
$= 180(6)$
$= 1080$

→ measure of each angle of the octagon ∴ ∠a

$\angle a = \frac{1080}{8} = 135°$

→ $d = e$ (isosceles triangle)
$135 + 2e = 180$
$e = 22.5$
$d = 22.5$

→ $180 - f = c$ (co-interior) $f = 135 - d$
$f = 112.5$
$180 - 112.5 = c$
$c = 67.5$

→ $135 - e - c = b$ $135 - 22.5 - 67.5 = b$
$b = 45°$

$\boxed{a = 135° \quad b = 45° \quad c = 67.5° \quad d = 22.5°}$