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

TOMORROW! Chp. 2 - Angle Properties

REVIEW / PRACTICE TIME...

CHAPTER 1...

- 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

Questions...

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8. Use inductive reasoning to make a conjecture about each number trick below. Then use deductive reasoning to prove your conjecture.

a) Choose a number. Add 3. Multiply by 2. Add 4. Divide by 2. Subtract the number you started with. What is the result?

b) Choose a number. Double it. Add 9. Add the number you started with. Divide by 3. Add 4. Subtract the number you started with. What is the result?

Inductive

-2	5	11	n
1	8	14	$2(n+3)$
2	16	28	$2n+6$
6	20	32	$\frac{2n+10}{2}$
3	10	16	$n+5$
	⑤	⑤	$-n$
			⑤

deductive

Conjecture: The result will always be 5.

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11. Examine the relationships below.
$$2(3^2 + 5^2) = 2^2 + 8^2$$
$$2(2^2 + 3^2) = 1^2 + 5^2$$
$$2(7^2 + 4^2) = 3^2 + 11^2$$

add the #'s then square

subtract #'s then square

a) Describe the patterns you see.

b) Jen makes the following conjecture: If you double the sum of two squares, the product is always the sum of two squares. Prove Jen's conjecture.

$$2\left(a^2 + b^2\right)$$
$$2a^2 + 2b^2$$

$$\left(a-b\right)^2 + \left(a+b\right)^2$$
$$a^2 - 2ab + b^2 + a^2 + 2ab + b^2$$
$$2a^2 + 2b^2$$

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2. Determine the value of x in the following diagrams.

a)

2x + 50°

x + 35°   2x

$$x + 35 + 2x + 50 + 2x = 180$$
$$5x + 85 = 180$$
$$5x = 180 - 85$$
$$5x = 95$$
$$x = 19$$

b)

3x

130° 50°   +   2x

$$\frac{130°}{5} = \frac{5x}{5}$$
$$26 = x$$

4. Joyce is an artist who uses stained glass to create sun catchers, which are hung in windows. Joyce designed this sun catcher using triangles and regular hexagons. Determine the measure of the interior angles of each different polygon in her design.
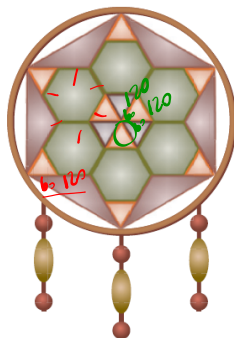
# of sides	interior ∠
3	60°
6	

$$Sum = 180(n-2)$$
$$= 180(6-2)$$
$$Sum = 720$$
$$Angle = \frac{720}{6}$$
$$= 120°$$

6. Determine the sum of the indicated angles.

$+720$
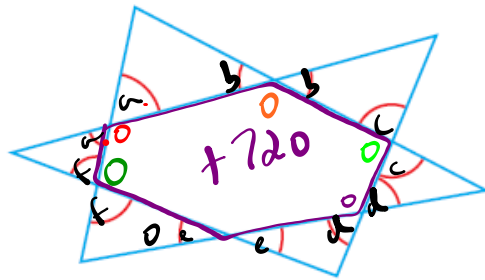
$$(180 - f) + (180 - a) + (180 - b) + (180 - c) + (180 - d) + (180 - e)$$

$$= 720$$

$$6(180) - 720 = a + b + c + d + e + f$$

$$360 = a + b + c + d + e + f$$

$\downarrow \times 2$

$\times 2 \downarrow$

$\boxed{720}$

5. *ABCDEFGH* is a regular octagon.

   a) Draw an exterior angle at vertex *C*.

   b) Determine the measure of the exterior angle you drew.

   c) Prove: *AF* ∥ *BE*

$$\text{b)} \quad 180 - 135$$
$$\text{b)} \boxed{45°}$$
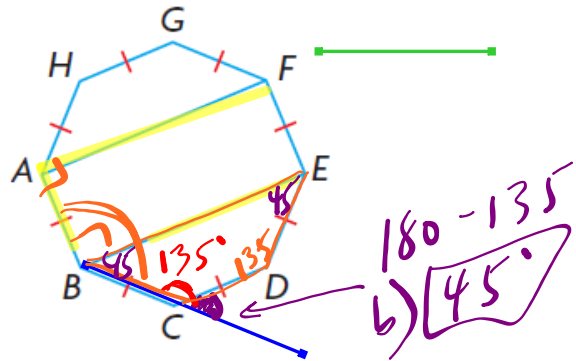
$$\text{b)} \quad angle = \frac{180°(8-2)}{8}$$
$$= 135°$$

Statement	Justification
∠BCD = 135°	Formula
∠CDE = 135°	Formula
∠CBE = 45°	$\frac{360 - 270}{2}$
∠CBA = 90°	Formula
∠BAF = 90°	See above
∠CBA + ∠BAF = 180°	Add
∴ AF ∥ BE	C I A