

PATTERNS DAY 6

Find the missing items in each of the following In-Out machines and find a rule. Express the rule in a complete sentence, describing how to find the out **in terms of the in**.

1.

IN	OUT
6	23
4	15
11	43
9	35
1	3
24	
	47

Rule:

2.

IN	OUT
CHP	BGO
IMT	HLS
WED	VDC
BUN	ATM
HOG	GNF
YET	
	FLY

Rule:

3.

IN	OUT
11	123
12	143
5	27
8	63
14	195
10	
	51

Rule:

4.

IN	OUT
CAP	XXX
IMP	yyy
CMR	x x
BAR	Z Z
BMP	zzz
	YY
IAR	

Rule

PATTERNS DAY 9

Perform the following operations.

1. $4 - 3 + 1$ 1. _____

2. $24 \div 2 \cdot 3$ 2. _____

3. $4 - 3 - 1$ 3. _____

4. $14 - 8 + 3 - 1$ 4. _____

5. $(5 - 2) \cdot 3^2$ 5. _____

6. $9 - (4 - 2)^2$ 6. _____

7. $14 - 2 \cdot 5 - 3$ 7. _____

8. $24 \cdot 4 \div 2$ 8. _____

9. $18 - 3^2$ 9. _____

10. $28 - 2 \cdot 3^2 + 3^2$ 10. _____

11. $(21 - (16 - (5 - 3)))$ 11. _____

12. $15 - 9 + 5 - 3 + 1$ 12. _____

13. $72 \div 9 \div 4 \div 2$ 13. _____

14. $4 \cdot 9 - 5 - 3 + 1$ 14. _____

15. $(12 - 3^2)^2 - 4^2 \div 2$ 15. _____

Order of Operations Quiz
PATTERNS AFTER DAY 9

Simplify each expression:

1. $13 - 5 + 4 =$

4. $\frac{2 \cdot 3 - 1}{3^2} =$

2. $8 - 2^4 \div 2 =$

5. $36 - (4 + 5 \cdot 4) =$

3. $25 - [2(3 + 7) - 4 \div 4] =$

Order of Operations Quiz
PATTERNS AFTER DAY 9

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3. $25 - [2(3 + 7) - 4 \div 4] =$

PATTERNS AFTER DAY 9

QUIZ ORDER OF OPERATIONS

Perform the following operations.

1. $7 - 2 + 3 - 1$ 1. _____

2. $18 \div 3 \cdot 2$ 2. _____

3. $(8 - 3) \cdot 2^2$ 3. _____

4. $13 - (5 - 2)^2$ 4. _____

5. $53 - 3 \cdot 2^2 + 4^2$ 5. _____

6. $15 - 9 + 5 - 3 + 1$ 6. _____

7. $48 \div 6 \div 2 \div 2$ 7. _____

8. $4 \cdot 9 - 6 \cdot 3 + 1$ 8. _____

Sigma Notation – Classwork

PATTERNS DAY 11

Write out each of these summations problems as a string of numbers added together and find the given sum.

1. $\sum_{i=1}^5 (2i) =$

5. $\sum_{k=1}^5 6k =$

2. $\sum_{i=0}^3 (3i \pm 1) =$

6. $\sum_{i=0}^4 i^2 =$

3. $\sum_{k=1}^4 9k =$

7. $\sum_{k=0}^2 \frac{1}{k^2 + 1} =$

4. $\sum_{n=2}^6 (5n)^2 =$

8. $\sum_{k=2}^5 (k-1)(k+3) =$

Use the summation notation to write the given sums.

9. $\frac{5}{1+1} + \frac{5}{1+2} + \frac{5}{1+3} + \dots + \frac{5}{1+15} =$

11. $1+3+5+7+9 =$

10. $4(1)+4(2)+4(3)+\dots+4(9) =$

12. $2+2+2+2 =$

Sigma Notation – Quiz

PATTERNS DAY 11

1. $\sum_{n=12}^{15} (2n + 2)$ represents the expression $(2 \cdot 12 + 2) + (2 \cdot 13 + 2) + (2 \cdot 14 + 2) + (2 \cdot 15 + 2)$

The number 12 is called the _____, the number 15 is called the _____ and the expression $2n + 2$ is called the _____.

2. Write out each of these summation problems as a string of numbers added together.

a) $\sum_{i=0}^4 3i^2 =$

b) $\sum_{k=3}^8 \frac{1}{k} =$

c) $\sum_{n=1}^3 10k =$

3. Use the summation notation to write the given sums.

a) $\frac{1}{2} + \frac{2}{3} + \frac{3}{4} + \frac{4}{5} + \frac{5}{6} =$

b) $10 + 17 + 26 + 37 =$

SIGNED NUMBERS PRE-TEST: NO CALCULATORS ALLOWED.

1. $-8 + 2 = \underline{\hspace{2cm}}$

2. $-4 + 9 = \underline{\hspace{2cm}}$

3. $-3 + -4 = \underline{\hspace{2cm}}$

4. $10 + (-6) = \underline{\hspace{2cm}}$

5. $5 - (-3) = \underline{\hspace{2cm}}$

6. $4 - 10 = \underline{\hspace{2cm}}$

7. $0 - 5 = \underline{\hspace{2cm}}$

8. $-2 - (-6) = \underline{\hspace{2cm}}$

9. $3(-4) = \underline{\hspace{2cm}}$

10. $-5(2) = \underline{\hspace{2cm}}$

11. $-6(-3) = \underline{\hspace{2cm}}$

12. $(-2)(4)(0) = \underline{\hspace{2cm}}$

13. $-15 \div 5 = \underline{\hspace{2cm}}$

14. $-3 \div 12 = \underline{\hspace{2cm}}$

15. $-24 \div (-3) = \underline{\hspace{2cm}}$

16. $20 \div (-2) = \underline{\hspace{2cm}}$

SIGNED NUMBERS POST-TEST: NO CALCULATORS ALLOWED.

1. $5 + (-8) = \underline{\hspace{2cm}}$

2. $-4 + (-2) = \underline{\hspace{2cm}}$

3. $9 + (-5) = \underline{\hspace{2cm}}$

4. $7 - (-3) = \underline{\hspace{2cm}}$

5. $-10 - (-2) = \underline{\hspace{2cm}}$

6. $4 - 10 = \underline{\hspace{2cm}}$

7. $0 - (-9) = \underline{\hspace{2cm}}$

8. $-8(-2) = \underline{\hspace{2cm}}$

9. $5(-3) = \underline{\hspace{2cm}}$

10. $16 \div (-2) = \underline{\hspace{2cm}}$

Give the answer, then explain using hot and cold cubes.

11. $-5 + (-4) = \underline{\hspace{2cm}}$ _____

12. $-3 - (-7) = \underline{\hspace{2cm}}$ _____

13. $-4(5) = \underline{\hspace{2cm}}$ _____

Write as an expression and give the resulting temperature change.

14. Three cold cubes are removed and seven hot cubes are added. _____

15. Two bunches of five cold cubes are added. _____

SIGNED NUMBERS AFTER DAY 14

Express each expression in terms of hot and cold cubes and then evaluate.

1. $2 + (-10) =$ _____

2. $-4 + (-8) =$ _____

3. $-3 - (-12) =$ _____

4. $-2(-10) =$ _____

Write a numerical expression and give the resultant temperature change.

5. Six cold cubes are added and then ten hot cubes are added. _____

6. Two hot cubes are added and then eight hot cubes removed. _____

7. Five bunches of four cold cubes are added. _____

8. Three bunches of ten cold cubes are removed. _____

9. Nine cold cubes added and then twelve hot cubes removed. _____

Evaluate the expressions.

10. $-3 + (-7) =$ _____

11. $15 + (-5) =$ _____

12. $4 - 9 =$ _____

13. $-8 - (-10) =$ _____

14. $0 - 5 =$ _____

15. $(-2)(-6) =$ _____

16. $4(-4) =$ _____

17. $-7(3) =$ _____

18. $-15 \div (-3) =$ _____

19. $-4 \div 20 =$ _____

20. $24 \div (-2) =$ _____

21. $12 - (-6) =$ _____

22. $-9 + 15 =$ _____

23. $-10 - (-3) =$ _____

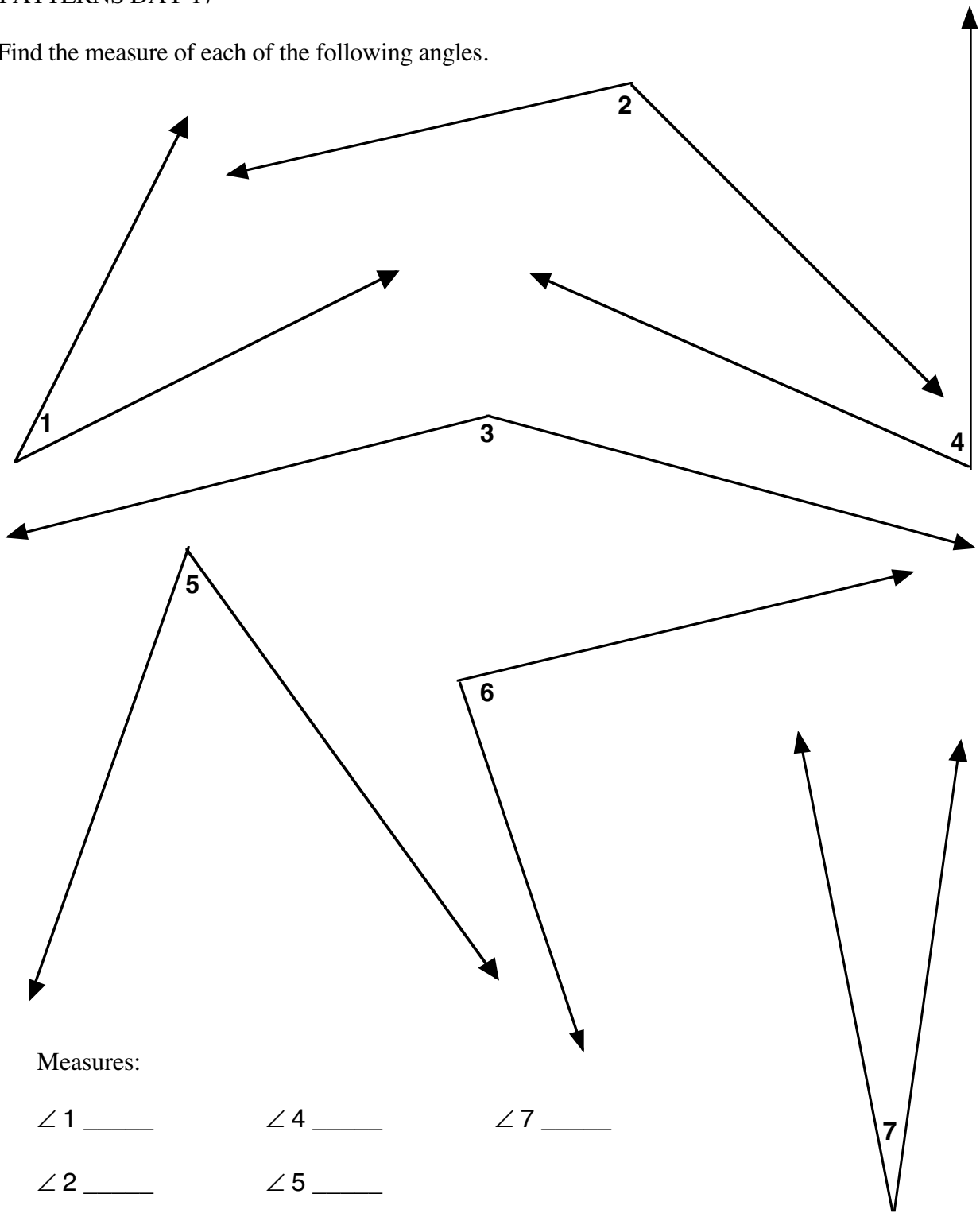
24. $-5(-4)(0)(-3) =$ _____

25. $0 - (-8) =$ _____

26. $-24 \div (-3) \div (-2) =$ _____

PATTERNS DAY 17

Find the measure of each of the following angles.



Measures:

$\angle 1$ _____

$\angle 4$ _____

$\angle 7$ _____

$\angle 2$ _____

$\angle 5$ _____

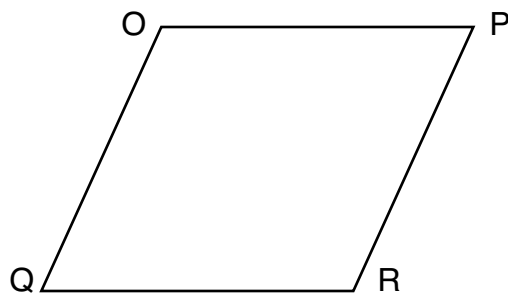
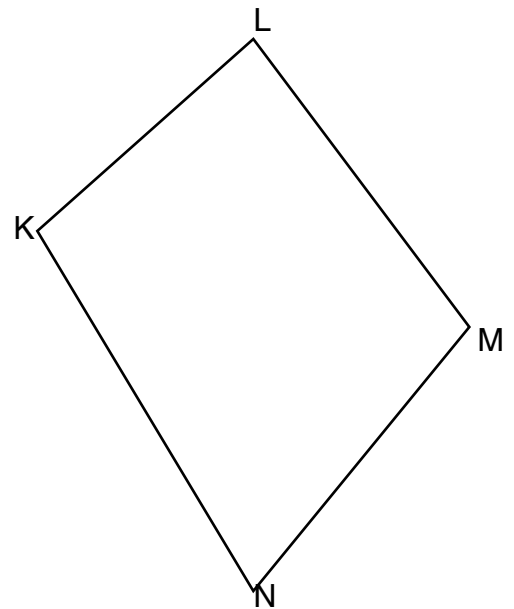
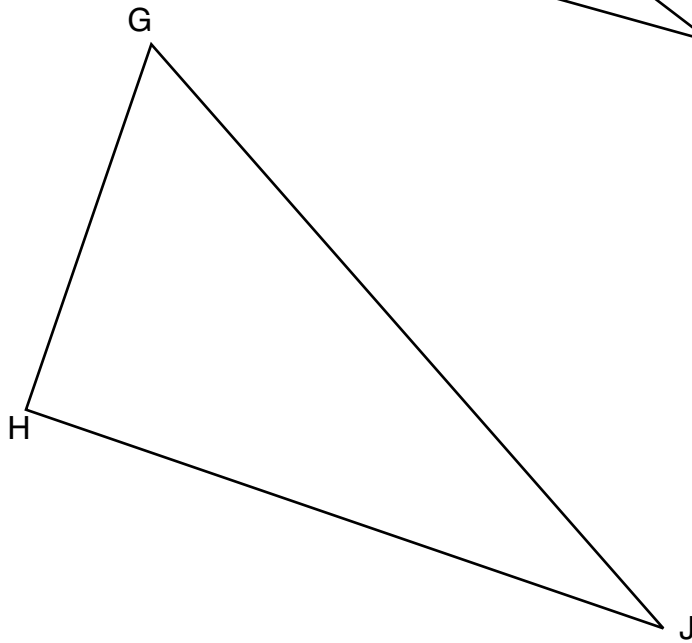
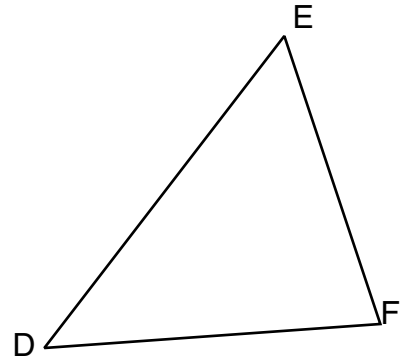
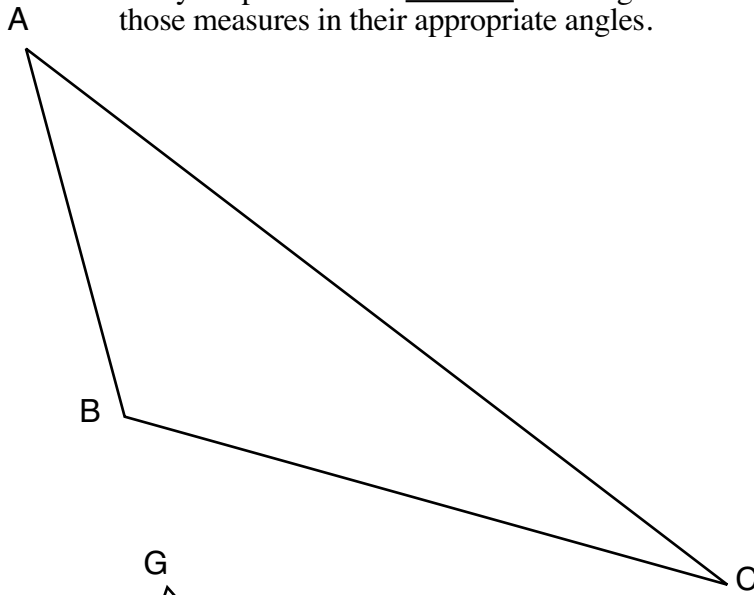
$\angle 3$ _____

$\angle 6$ _____

Degree Discovery

PATTERNS DAY 18

Use your protractor to Measure each angle of these triangles and Write those measures in their appropriate angles.



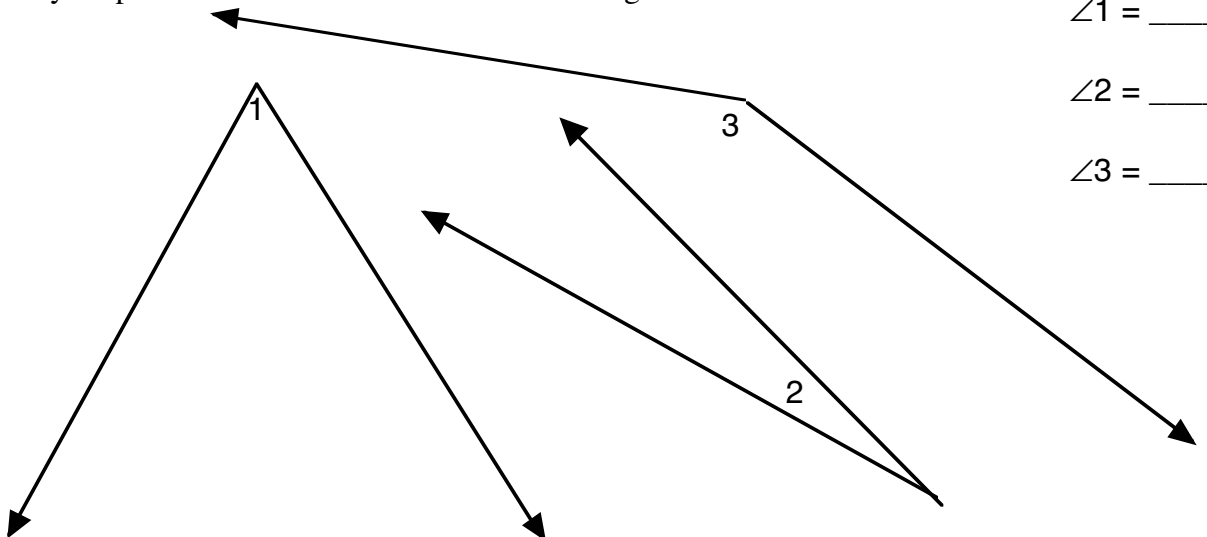
Angle Measurement & Geometric Vocabulary

PATTERNS DAY 19

Match the following:

- | | |
|-----------------------|--|
| a. Obtuse Angle | 1. ___ A geometric figure formed by two rays with a common vertex. |
| b. Counterclockwise | 2. ___ A polygon whose sides all have equal length and whose angles all have equal measure. |
| c. Acute Angle | 3. ___ Where two lines, segments or rays intersect. |
| d. Degree | 4. ___ A portion of a line having a given endpoint and continuing to infinity in only one direction. |
| e. Angle of a Polygon | 5. ___ An angle that measures more than 90° and less than 180° . |
| f. Vertex | 6. ___ An angle that measures 90° . |
| g. Rays | 7. ___ An angle that measures more than 0° and less than 90° . |
| h. Protractor | 8. ___ The measurement unit for an angle defined by having a complete turn equal to 360° . |
| j. Regular Polygon | 9. ___ The direction in which you must turn to "open" an angle. |
| k. Right Angle | 10. ___ The instrument calibrated to measure an angle. |
| l. Angle | |

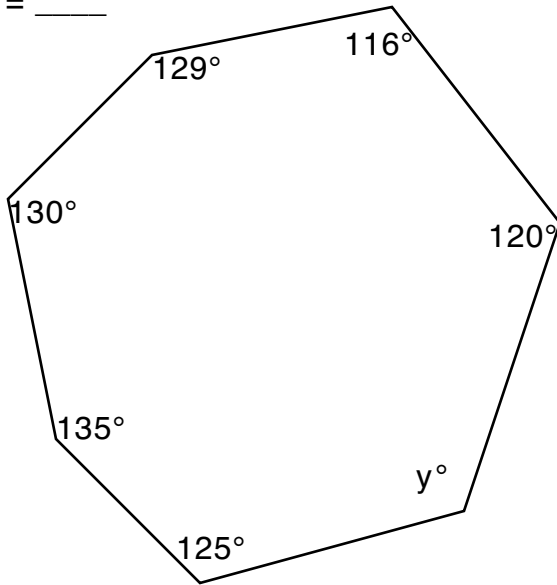
Use your protractor to find the measure of each angle.



Regular Polygons-Each Angle & Angle Sum Quiz
PATTERNS DAY 22

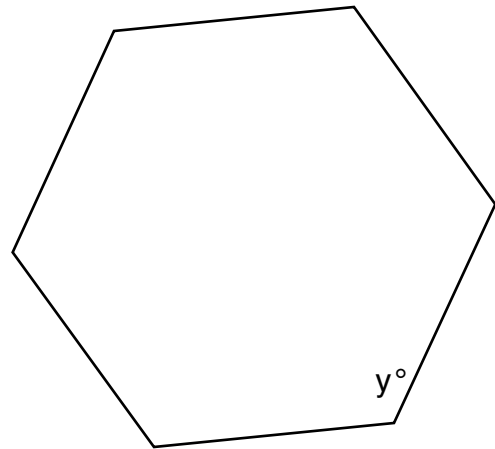
Find the value of y° in each of the following:

$y =$ _____



Below is a REGULAR POLYGON

$y =$ _____



For a REGULAR Pentagon find:

a) The SUM of all the angles. _____

b) The measure of any SINGLE angle. _____

PATTERNS

SUPPLEMENT TO IN-CLASS ASSESSMENT

4. Evaluate the expression: $25 - 3 \cdot 2^2 + 5$

5. A six-sided polygon has angles measuring 89° , 123° , 141° , 96° , and 138° . What is the measure of the sixth angle? Show how you get your answer.

6. Write as a string of numbers added together and find the sum.

$$\sum_{i=0}^5 (2i + 1)^2$$

7. A REGULAR polygon has 15 sides.

a. What is the sum of the interior angle measures? Explain how you got your answer.

b. What is the measure of each interior angle?