Michael Plasmeier

Grading for Patterns Portfolio

Cover Page

	POINTS
Cover Page with title, name & date	1
Stapled	1

Cover Letter for Patterns

Dear Mr Trabus,
This is what I studied.

Topics Studied	5

25

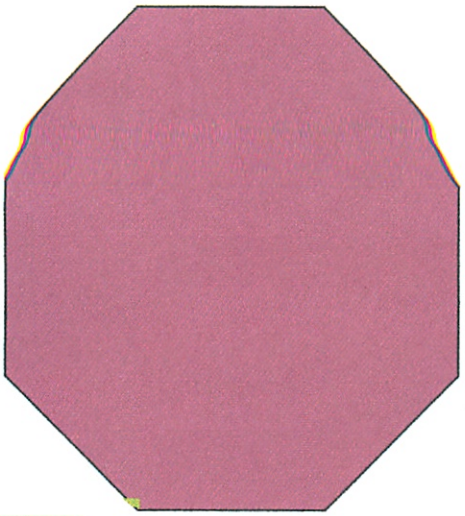
Selecting Papers from Patterns

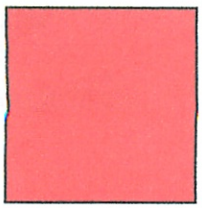
All Quizzes	3
All POW's	3
Homework assignments	12

Grading Sheet

Place Holder Cards w/ holes

In	Out
5	120
7	5040
3	6

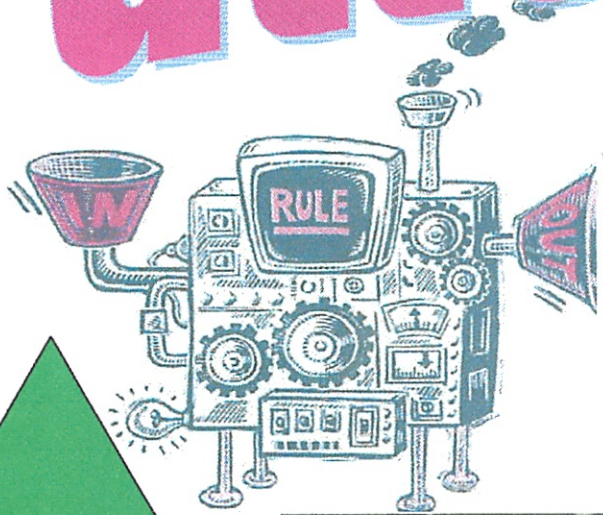


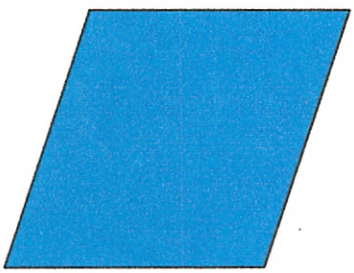


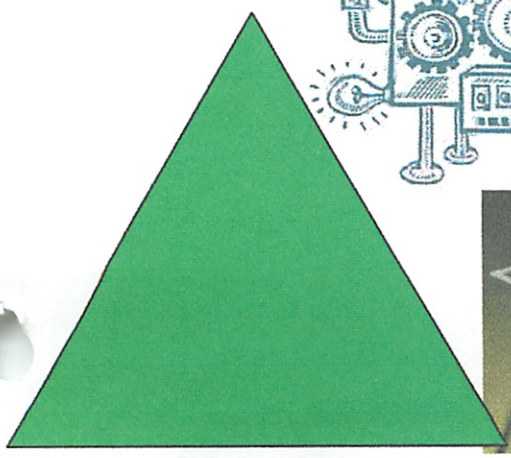
$$+ \; -\Sigma \; 2+3+4$$

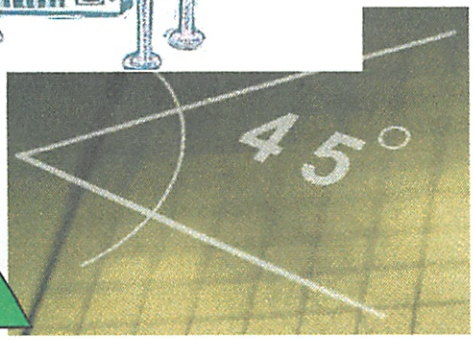
Michael Plasmeier
11/3/2004
P.D.:7

Patterns









November 3, 2004

Dear Mr. Trabosh:

I learned a lot about math and formulas in the patterns unit. This unit was mostly about numbers and finding clear patterns or formulas in them. We started working with pattern being repeated, and some In-Out tables, where you have one rule which happens to all the numbers in the in column. Since I already had some experience w/ in I-Out Tables from Everyday Math, I was already pretty good. However, I learned an easy way to find patterns by noticing the difference between the numbers. I also learned how to write the rules in formulas, and noticed the resemblance on the graphs we did last year. I also noticed a resemblance, on my own, using the graphing calculators.

Then, I worked on some problems like Getting Down to One, and Marcella's Bagels. For these problems we kept repeated a pattern. For Getting Down to One, we had a conditional pattern, where one thing or another could have happened if the number was even or odd. In Marcella's Bagels, we had a 2 step pattern which we followed, working backwards. Next we worked on consecutive sums, were I found that: any odd number can be the sum of 2 consecutive numbers. To find which 2, use this formula: [(x/2) -.5]+[(x/2)+.5] This was a pattern and a rule, which always worked for all of the odd numbers. We also did a little work with proofs to check our work.

And after that, we worked on sigma notation, where we also repeated a pattern over and over, and increasing one number each time we repeated the pattern. We then worked with the chiefs on hot and cold cubes to learn positive and negative numbers. This story did not help me all that much, because I can remember the rules pretty well on my own, though I do admit it did help me. I wish the story went and did division too.

We did a lot of work with order of operations and evaluating expressions. I felt this did have not much to do with this unit. It might have been to prepare us for the year, but I think we all get the topic quick. We did not need to spend that much time on the subject. We also worked with and learned a bit about recursive formulas.

After hot and cold cubes, we worked with angles and finding patterns there. For example, we learned about diagonals and about finding the sums of all the angles (180/(s-2) and the size of one angle ([180/(s-2]/2). After this we worked on a few more problems, to pull the unit all together. Overall, this unit has given me some formulas to solve general problems, and I was introduced to some new rules and topics, like that any odd number can be made using 2 consecutive numbers. The major math skills I learned in this unit were: the factorial, absolute value, and, what I believe to be the most important, sigma notation.

Sincerely,

Michael Plasmeier

Michael Plasmeier
P.D.:7

GRADING FOR POW 1

1) Problem Statement — POINTS

Copied	0
Incomplete	2
Paraphrased and complete	4

(3) missed the stating of the 2nd question!

2) Process

Unrelated to the problems	1
Incomplete- started but only one step or trial shown	3
All trials mentioned – specifics omitted	4
Minimum descriptions of trials, but drawings, tables included	5
Complete descriptions, but drawings, tables omitted (if applicable)	6
Complete, with drawings, tables	8

wow!!

3) Solution

Wrong answer not defended	1
Correct answer not defended	3
Wrong answer some support	4
Wrong but well supported	6
Correct, defended with mathematical reasoning, has errors	7
Correct, well supported	8

OK

Total Points ---------- 20

19

Name Michael Plasmeier Quiz

Date 9/22 30 points

27/30

Perform the order of operations to solve each of the following.

1) $(8 - 3) \cdot 2^2 =$ 20

5 • 4

20

2) $53 - 3 \cdot 2^3 + 4^2 =$ 45

53 - 3 • 8 + 16

53 - 24 + 16

29 + 16

45

53 - 3 × 8 + 16

53 - 24 + 16

53
-24
29

3) $15 - 9 + 12 \div 6 \cdot 2 =$ 10

15 - 9 + 2 • 2

6 + 4

10

53
-24
29
+16
45

4) $48 \div 12 + 2 \cdot 4 =$ 12

4 + 8

12

5) $4 \cdot 9 - 6 \cdot 3 + 1 =$ 19

36 - 18 + 1

18 + 1

19

18
+18
36

0

6) $14 \bullet [12 \div (4 + 16 \div 8)] =$ 28

$14 \bullet [12 \div (4+2)]$

$14 \bullet (12 \div 6)$

$14 \bullet 2$

28

7) $70 - 2^5 \bullet (7 - 5) =$ 6

$70 - 32 \bullet 2$

$70 - 64$

6

Insert the **fewest sets of parentheses** that will make each of the following true.

8) $4 \bullet (9 - 6) \div (2 + 4) = 2$

$4 \bullet 3 \div 6 = 6$

$12 \div 6$

2

9) $(6 + 3) \bullet (4 + (3 + 2^3) \bullet 2 - 7 = 261$

4
15
×9
135
×2
270

check it

10) $[10 - (4 + 3)] \bullet 4 + 5 \bullet 2 = 22$

$(10 - 7) \times 4 + 5 \times 2$

$3 \cdot 4 + 5 \cdot 2$

$12 + 10$

22

Punch

GRADING FOR POW 2

1) Solutions

ONE 1-2-3-4 expression for each number (1 to 25) ---------- 1 point each

One point is deducted for each incorrect expression

Total Points ---------- 25

26

PATTERNS QUIZ 50 pts

NAME : Michael Plasencia NUMB : 8848

DATE : 9/29

(+1) 36

Read all directions Carefully !

1. Complete the IN / OUT table, write a rule, and an equation.

IN	OUT
3	10
5	8
6	7
10	3
n	-1n +13
12	1

RULE : The OUT is ... equal to the In times -1 and add 13

Equation : y = -1x +13

2. Complete the IN / OUT table, write a rule, and an equation.

IN	OUT
1	3
5	11
6	13
10	21
n	2n +1
23	~~44~~ 47

That's the in for 23 out

RULE : The OUT is ... equal to 2 times the In plus 1

Equation : y = 2x +1

3. Complete the IN / OUT table, write a rule, and an equation.

IN	OUT
6	23
4	15
11	43
9	35
1	3
24	95
12	47

RULE : The OUT is ... equal to 4 times the In minus 1

Equation : y = 4x -1

4. Complete the IN / OUT table if OUT = 3 • IN - 1

IN	OUT
5	14
-4	-13
3	8
1/3	0
0	-1

(1)

5. Complete the IN / OUT table if OUT = $2IN^2 + IN$

IN	OUT
3	~~39~~ 21
-3	~~33~~ 15
5	~~145~~ 55
~~2.5~~	1
0	0

Square 1st?

Evaluate each of the following. Show all work!

6. $(7-3)\cdot 3^3$

4 ~~6~~ x 27

~~132~~ 108 pts -4

I can't subtract

7. $23 - 3 \cdot 2^3 + 5^2$

23 - 3 x 8 + 25

23 - 24 + 25

-1 + 25

24

8. $52 \div 13 + 9 - 8 \div 2$

4 ~~1~~ + 9 - 4

13 - 4 -3 pts

9 13

9. $13 - 9 + 16 \div 4 \cdot 2$

13 - 9 + 4 x 2

13 - 9 + 8

4 + 8

12

10. $70 - 2^3 \cdot (7-5)$

70 - 8 x 2

70 - 24 -3 pts

56

54

Patterns Quiz

44/45

Name: Michael Plasmeier

Date: 10/06/04

8348

Be sure to read all directions CAREFULLY!!!!

IN/OUT tables

1. Complete the IN/OUT table.

OUT = 2 × IN + 1

IN	OUT
5	11
-3	-5
9	19
8	17

2. Complete the IN/OUT table, write a rule, and algebraic expression.

IN	OUT
4	19
7	31
2	11
5	23
3	15
10	43

+1 (4, 7, 2, 5) +4 ×6 -4 ×4 13

RULE: The out is ... 4 times the in + plus 3

Expression: y = 4x 13

3. Complete the IN/OUT table, write a rule, and algebraic expression.

IN	OUT
15	3
33	9
3	-1
6	0
9	1
30	8

+3 (3, 6, 9) -1 +3 -2

RULE: The out is ... the In divided by 3 minus 2

Expression: y = x ÷ 3 - 2

4. Complete the IN/OUT table & write a rule.

IN	OUT
CHP	BGO
IMT	HLS
WED	VDC
BUN	ATM
YET	XDS
GMZ	FLY

RULE: Take each letter of the In and go 1 back in the alabet ex B → A G → F

ok

0

Order of operations

Add parentheses as needed to make the following statements TRUE.

5. $36 - 4 + 5 \cdot 4 = 12$ → $36 - (4 + 5) \cdot 4 = 12$

$36 - (4 + 20)$

$36 - 24$

12

6. $4 \cdot 9 - 6 \cdot 3 + 1 = 48$ → $4 \cdot (9 - 6) \cdot (3 + 1) = 48$

$4 \cdot 3 \cdot 4$

$12 \cdot 4$

48

7. $2 + 4 \cdot 6 - 8 \div 4 = 6$ → $2 + (4 \cdot 6 - 8) \div 4 = 6$

$2 + (24 - 8) \div 4$

$2 + 16 \div 4$

$2 + 4$

6

Explain the order of operations for each of the following problems and evaluate each.

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

$8 - 16 \div 2$

$8 - 8$

0

Well 1st you do the exponate, then you do the divison, finaly you do subtraction

9. $\dfrac{2 \cdot 3 - 1}{3^2}$ $\quad 6 - 1$ $\quad 9$ $\quad \frac{5}{9}$

You first do the top of the line, You then do the multiplacation up top and then subtraction. Wen you ivaluate the bottan and get $\frac{5}{9}$ You normal divido but I keep it as a fraction.

Summation Notation

Write each of these summation problems in expanded form and find the sum.

10. $\sum_{a=0}^{5} 3a^2$ $= 3 \cdot 0^2 + 3 \cdot 1^2 + 3 \cdot 2^2 + 3 \cdot 3^2 + 3 \cdot 4^2 + 3 \cdot 5^2$

$3 \cdot 0 + 3 \cdot 1 + 3 \cdot 4 + 3 \cdot 9 + 3 \cdot 12 + 3 \cdot 25$

$0 + 3 + 12 + 27 + 36 + 75$

153

11. $\sum_{n=12}^{15} (2n + 2)$ $(2 \cdot 12 + 2) + (2 \cdot 13 + 2) + (2 \cdot 14 + 2) + (2 \cdot 15 + 2)$

$(24 + 2) + (26 + 2) + (28 + 2) + (30 + 2)$

$26 + 28 + 30 + 32$

116

12. $\sum_{i=1}^{10} 5$ $5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5$

50

Use summation notation to write the given sums and evaluate.

13. $\frac{3}{1} + \frac{3}{2} + \frac{3}{3} + \frac{3}{4} =$ $\sum_{1}^{4} \frac{3}{x}$

$3 + 1.5 + 1 + .75$

$6.25 \rightarrow 6\frac{1}{4}$

14. $10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 =$ $\sum_{x=1}^{10} 10$

100

15. $5 - 10 + 17 + 26 + 37 + 50 =$ $\sum_{x=3}^{7} x^2 + 1$

1 2

+1 +3 +5 +7 +9 +11 +13

140

1

Name Michael Plasmeier 8848

Date 12/13

Real Number Quiz
IAG 1 (30 points)

25

Answer each of the following.

1) $33 + {}^{-}45 =$ ~~-11~~ -1

2) ${}^{-}5 \cdot 7 =$ -35

3) ${}^{-}36 \div 12 =$ -3

4) $43 + {}^{-}45 =$ 88

5) ${}^{-}21 + 19 + {}^{-}5 =$ -7

6) $12 + {}^{-}23 - 35 =$ 0

7) $88 \div {}^{-}11 =$ -8

8) ${}^{-}3 \cdot {}^{-}5 \cdot {}^{-}4 =$ -60

9) $({}^{-}4)^3 =$ -64

10) $-2^4 =$ -16 -1

11) $3\frac{1}{3} + {}^{-}5\frac{5}{6} =$ $9\frac{1}{6}$

12) ${}^{-}3\frac{3}{4} - 6 =$ $-9\frac{3}{4}$

13) $\frac{-3}{4} - \frac{2}{3} + (-1\frac{5}{6}) =$ ~~-2 5/6~~ -1

14) $2\frac{1}{3} \cdot {}^{-}3\frac{1}{4} =$ $-7\frac{7}{12}$

15) $-0.9^2 =$ ~~-0.81~~

Patterns Pop - Assessment

Name : Michael Plasmeier

15 points

Date : 10/13 8848

Be sure to read all directions CAREFULLY !!!!!

A. Each of the problems below describes an action by chef Quirk. Figure out how the temperature would change overall in each of these situations and write an equation to describe the action and the overall result.

1. Three hot cubes added and six cold cubes removed

$+3 - 6 = +9°$

2. Five bunches of seven cold cubes removed

$-5 \times -7 = +35°$

Not Needed

B. Describe the action involving hot or cold cubes that is represented by each of the following arithmetic expressions and state how the temperature would change overall.

1. $-6 + +5 = -1°$

Add 6 cold cubes and remove 5 cold cubes

2. $-4 + *5 = +1°$

Add 4 cold cubes and add 5 hot cubes

3. $+8 \cdot -4) = +32°$ (32)

Add 8 groups of 4 cold cubes

Michael Plasmeier

GRADING FOR POW 3

1) Problem Statement — POINTS

Copied	0
Incomplete	2
Paraphrased and complete	4

2) Process

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Incomplete- started but only one step or trial shown	3
All trials mentioned – specifics omitted	4
Minimum descriptions of trials, but drawings, tables included	5
Complete descriptions, but drawings, tables omitted ~~(if applicable)~~	6
Complete, with drawings, tables	8

3) Solution

Wrong answer not defended	1
Correct answer not defended	3
Wrong answer some support	4
Wrong but well supported	6
Correct, defended with mathematical reasoning, has errors	7
Correct, well supported	8

Total Points ---------- 20

Name Michael Plasmeier

10/19

8848

+1

26

Angle Measurement & Geometric Vocabulary Quiz

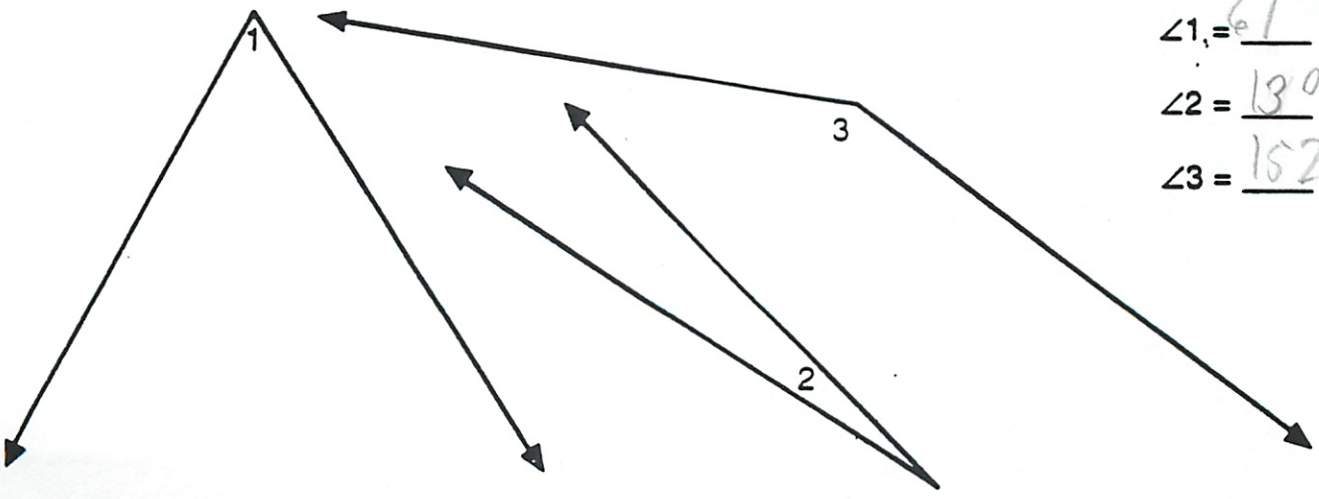
PATTERNS DAY 19

Match the following:

a. Obtuse Angle
b. Counterclockwise
c. Acute Angle
d. Degree
e. Angle of a Polygon
f. Vertex
g. Rays
h. Protractor
i. Regular Polygon
k. Right Angle
l. Angle

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

Use your protractor to find the measure of each angle.



∠1 = 61°

∠2 = 13°

∠3 = 152°

0

Name : Michael Plasmeier IMP 1 QUIZ Date : 10/25 Numb : 8848

16/20

Answer each of the following.

1) $23 - {}^{-}48 =$ 71

2) ${}^{-}6 \cdot 9 =$ -54

3) ${}^{-}12 - 19 + {}^{-}35 =$ -66

4) $({}^{-}5)^2 - {}^{-}9^2 =$ 106

5) ${}^{-}4\frac{2}{3} + {}^{-}5\frac{1}{2} + 2\frac{3}{4} =$ $+3\frac{7}{12}$

6) ${}^{-}3\frac{1}{2} - 4\frac{1}{3} + {}^{-}2\frac{3}{8} =$ $-10\frac{1}{13}$

7) ${}^{-}0.8^2 =$ -0.64

8) ${}^{-}4 + {}^{-}2\frac{1}{2} + 9 =$ $7\frac{1}{2}$

Write summation notation for the following and evaluate.

9) $10 + 14 + 18 + 22 + 26 + 30 + 34 =$ 154

$\sum_{x=1}^{9} 4x - 2$

Expand and find the sum.

10) $\sum_{n=0}^{4} 3n^2 - n =$ 99 − 10 = 89

PATTERNS
NAME : Michael Plasmeier (+1) Date : 10/27 Numb : 8848
UNIT ASSESSMENT FORM A
Be sure to read all directions CAREFULLY !!!!

98/90

Order of operations
Evaluate the following problems. Be sure to follow the order of operation. (6 pts each)

1. $22 - 3 \cdot 4^2 + 3^2 =$ -17

$22-3\cdot16+9$
$22-48+9$
$-26+9$
-17

2. $\dfrac{4\cdot5+2^2\cdot3}{2^5} =$ 1

$\dfrac{20+4\cdot3}{32}$
$\dfrac{20+12}{32}$
$\dfrac{32}{32}=1$

3. $16+(-10) =$ 6

$16-10$
6

Summation Notation
Write each of these summation problems in expanded form and find the sum. (6 pts each)

4. $\sum_{x=0}^{3} (3x)^2 - x$

$(3(0))^2-0+(3(1))^2-1+(3(2))^2-2+(3(3))^2-3$
$0^2-0+3^2-1+6^2-2+9^2-3$
$9-1+36-2+81-3$
$8+117-5=120$

5. $\sum_{a=8}^{12} 4a+3$

$4(8)+3+4(9)+3+4(10)+3+4(11)+3+4(12)+3$
$32+3+36+3+40+3+44+3+48+3$
215

6. $\sum_{y=2}^{5} 2y^2$

$2(2^2)+2(3^2)+2(4^2)+2(5^2)$
$2(4)+2(9)+2(16)+2(25)$
$8+18+32+50=108$

Use summation notation to write the given sums and evaluate. (6 pts)

7. $10+17+24+31+38=$

$7+7+7+7$
$\sum_{x=1}^{5} 7x+3$
$7(1)+3+7(2)+3+7(3)+3+7(4)+3+7(5)+3$
$7+3+14+3+21+3+28+3+35+3$
120

8. $0+3+12+27+48=$ 90

$+3 \quad +9 \quad +15 \quad +21$
$+6 \quad +6 \quad +6$

$\sum_{x=1}^{4} 3x^2$ -2

divide #1 by 3 for
$0+1+4+9+16$ (2)

IN / OUT tables (6 pts each)

9. Complete the IN / OUT table, write a rule, and algebraic expression.

IN	OUT
4	11
8	19
-2	-1
-5	-7
10	23
14	31

RULE : The OUT is ... 2 times the In plus 3

Expression : $y = 2x + 3$

10. Complete the IN / OUT table, write a rule, and algebraic expression.

IN	OUT
4	25
2	3
5	121
10	3628801
6	721
3	7

RULE : The OUT is ... the In factoral plus 1

Expression : $y = x! + 1$

Geometric Terms

Match each statement with a letter from the right. Use each letter only once. (2 pts each)

11. F The tool for measuring angles in degrees
12. G An angle with measure greater than 90^o
13. H A Polygon with 6 sides
14. E A segment in a polygon connecting opposite vertices
15. A An angle with measure less than 90^o
16. D A polygon with equal angles and sides
17. B The unit of measure for angles
18. C A polygon with eight sides

A. acute angle
B. degree
C. octagon
D. regular polygon
E. diagonal of a polygon
F. protractor
G. obtuse angle
H. hexagon

19. A heptagon is a seven sided polygon. If you know that two of the angles have equal

19. A heptagon is a seven sided polygon. If you know that two of the angles have equal measure and the others are $179^o, 99^o, 161^o, 171^o, 81^o$, please find the measures of the two missing angles. SHOW ALL OF YOUR WORK!

179
99
161
171
81
691

180(5-2)
180(7-2)
180(5)
900

900
-691
209

2|209
104.5

(6 pts) Answers 104.5

20. An isosceles triangle is a triangle in which at least two angles are equal. (8 pts) $\angle B and \angle C$ are known to be equal in this triangle at all times.

a) Suppose $\angle B = 50^o$. Find the size of $\angle A$. $\angle A =$ 80°

180 - 50(2) = 80

b) Suppose $\angle B = 80^o$. Find the size of $\angle A$. $\angle A =$ 20°

180 - 80(2) = 20

c) Make an IN / OUT table and develop an ALGEBRAIC EXPRESSION that will tell the size of $\angle A$ in terms of the size of $\angle B$. That is, $\angle B$ should be the IN and $\angle A$ should be the OUT.

algebraic expression 180 - 2x = y

∠B x In	∠A y Out
50	80
80	20

0

Extended Bagels (#7)

Michael Plasmeier 9/17

1. The solution plays a big part because you double the ending number, so if you start at 14, its much higher. Here is an In-Out table

In	Out
0	28
1	36
2	44
3	52
4	60
5	68
6	76
7	84

+8, +8

The rule is in the bagle problem

$\frac{y}{x} \frac{8}{1} + 28$

$y = 8x + 28$

Add 2 1st I did 2nd

Polling out #10

Michael Plasmeier Rules 9/24/04

1. a. Multiply the In by 2 and add 3 to get the out
$y = 2x + 3$ (-1, -2) 2 -5 [10 23) -10
5 13
0 3

b. Multiply the In by 7 and subtract 4 to get the out
$y = 7x - 4$

Was correct

c. The In plus the Out equals 20
Out is equil to 20 minus the In
$y = 20 - x$
15 [3 | 17] -5 → -5 -7 +8 = -1
-8 [8 | 12] +8 → 5 7 -7
0 | 20

2 a. Out is equil to 3 times the In $y = 3x$
Out is equil to 20 plus to In $y = 20 + x$
Out is equi to 5 times the In minus 20 $y = 5x - 20$
Out is equil to divided by 2 of In and add 25 $y = \frac{x}{2} + 25$
B2 Out is equil to 20 minus the In plus 40 $y = x - 20 + 40$

b. Out is equi to the In times 5 | $y = 5x$
Out is equil to the In plus 20 | $y = 20 + x$
Out is equil to the In times 10 minus half $y = 5x - \frac{1}{2}$
Out is equil to the In puts 320 divided by 12 | $y = (x + 320)/12$
Out is equil to the $\frac{\text{In}}{\text{In}^2}$ minus 5, plus 25 $y = x - 5 + 25$

3 a.

In	Out
0	0
1	2
2	5
3	8
4	11
5	14
17	30
11	32

$y = 3x - 1$

b. Solve + Explanc 11
I think it will take 15 workers to clean up 32 weeds. I think this because I notice the chart increased at a rate of (1, 3). I found 5, 10 and tripled that for (15, 30)

Add it up #11

9/27

1a. $\sum_{z=3}^{8} z = 3+4+5+6+7+8$

(33)

1b. $\sum_{m=1}^{5} 2m = 2\cdot1 + 2\cdot2 + 2\cdot3 + 2\cdot4 + 2\cdot5$

$2 + 4 + 6 + 8 + 10$

(30)

c $\sum_{c=2}^{9} (4c+7) = (4(2)+7) + 4\cdot3+7 + 4\cdot4+7 + 4\cdot5+7 + 4\cdot6+7$

Always 4

$8 + 7 + 12 + 7 + 16 + 7 + 20 + 7 + 24 + 7$

$15 \quad 15 + 4\cdot19 + 7 + 4\cdot23 + 7 + 4\cdot27 + 7 \quad 31$

$115 + 28 + 7 + 32 + 7 + 39 + 7$

(232)

2. $\sum_{x=1}^{4} 1 = 1+2+3+4$

(10)

Pattern +4

So Do this

0	7	+4
1	11	+4
2	15	+4
3	19	+4
4	23	+4
5	27	
p	4p+7	

Rule = $4x+7$

3a $\sum_{x=10}^{15} x$

c $\sum_{x=3}^{7} 3x-1$

$\sum_{x=2}^{6} 3x+2$

b. $\sum_{x=1}^{21} x+3$ $3x$

Over →

4/ $\sum_{x=1}^{5} x^2$ - Is top #, ~~#of x repeated or~~

Stop when you get the #

Solve $\sum_{x=1}^{5} x^2$ $1\cdot1+2\cdot2+3\cdot3+4\cdot4+5\cdot5$

55

When # this stop

That Odd #12

Michael Plasmeier 9/28

I think the rule is true because Charlie already proved it. You take half of the odd number and subtract .5 once and add .5 for the second number. Add it together

$$73 - 36.5\left(\tfrac{1}{2}\right)$$

$$36.5 - .5 = 36 \qquad 36.5 + .5 = 37$$

$$36 + 37 = 73$$

$$23 - 12.5\left(\tfrac{1}{2}\right)$$

$$12.5 - .5 = 12 \qquad 12.5 + .5 = 13$$

$$12 + 13 = 23$$

x = odd # $\quad x_1 = (x-1) \div 2 + 1$

x_1 = consecutive $\quad$ and

x_2 = sum $\quad x_2 = (x-1) \div 2$

$x_1 + x_2 = x$

Ex: $(45-1) \div 2 + 1 = 23$

and

$(45-1) \div 2 = 22$

$23 + 22 = 45$

IMP 1 Worksheet #1
Order of Operations

Name. Michael Plasmeier Date 9/13

Solve the following by using the order of operations. SHOW ALL WORK!

1) $(7 + 9 + 2) \div 3^2 + 1$

2) $3 \bullet (7+4) \div (2^3+3)$

On seperate paper

---

3) $7 + 2 \bullet (5^2 - 1) \div 6$

4) $30 - 2^3 \bullet (7-4)$

---

5) $\dfrac{27 + (5-2)^2 \bullet 4}{7+2}$

6) $\dfrac{3^2 \bullet 2^3 - 3 \bullet 2^2}{6+4}$

---

7) $5^3 + 4 - 3 + 1^4$

8) $12 \bullet [6 \div (3 + 12 \div 4)]$

Insert parentheses to make each of the true.

9) $5 \bullet 7 - 4 \div 3 + 2 = 3$

10) $3 \bullet 6 + 2 + 8 - 32 \div 16 = 46$

11) $3 + 3^2 + 6 \bullet 2 - 1 = 18$

12) $9 - 4 + 3 \bullet 3 + 4 \bullet 2 = 47$

13) $2 \bullet 5^3 - 10^2 + 4 - 7 = 47$

14) $5 + 4 \bullet 3 - 7 \bullet 2 - 5 = 18$

Worksheet 1

Michael Plasmeier 9/13

1. $(7+9+2) \div 3^2 + 1$

$18 \div 3^2 + 1$

$18 \div 9 + 1$

$2 + 1$

(3)

2. $3 \times (7+4) \div (2^3 + 3)$

$3 \times 11 \div (8+3)$

$33 \div 11$

(3)

3. $7 + 2 \times (5^2 - 1) \div 6$

$7 + 2 \times (25 - 1) \div 6$

$7 + 2 \times 24 \div 6$

$7 + 48 \div 6$

$7 + 8$

(15)

4. $36 - 2^3 \times (7-4)$

$36 - 8 \times 3$

$36 - 24$

(6)

5. $\frac{27 + (5-2)^2 \times 4}{7+2}$ Don't forget bottom

$27 + 3^2 \times 4$

$27 + 9 \times 4$

$27 + 36$

$\frac{63}{9} \rightarrow (7)$

6. $3^2 \times 2^3 - 3 \times 2^2$

$9 \times 8 - 3 \times 4$

$72 \quad 12$

(60)

$6 + 4 \rightarrow 10 \rightarrow (6)$

7. $5^3 + 4 - 3 + 1^4$

$125 + 4 - 3 + 1$

$129 - 2$

(127)

$-3 + 1 = -2$

8. $12 \times [6 \div 3 + 12 \div 4]$

$12 \times [6 \div (3+3)]$

$12 \times (6 \div 6)$

12×1

(12)

Over →

(= Fewest #

9. $[5 \times (7 - 4)] \div (3 + 2) = 3$

10. $[3 \times (6 + 2 + 8)] + (32 \div 16) = 46$

11. $(3 + 3^2) + [6 \times (2 - 1)] = 18$

~~12.~~ $9 - [(4 + 3 \times 3 + 4) \times 2] = 47$

13 Just 3+4

13. $[2 \times (5^3 - 10^2)] + 4 - 7 = 47$

125 100

~~14~~ ~~$[(5 + 4 \times 3) - [7 \times 2 \times 5]] - 8$~~

$(5+4) \times 3 - (7 \times 2 \times 5) = 18$

Name Michael Plasmeier IAG I

Date 10/19

Evaluate each of the following using the order of operations.

1) $-3 + 4 \bullet -5 - -3 =$ -20

$-3 + -20 + 3$

-20

2) $(-4)^2 - 5^2 - -12 =$ 3

$16 - 25 + 12$

$28 - 25$

3) $2^5 - 6^2 + -10 \bullet 3 =$ -34

$32 - 36 * -30$

$32 - 66$ Bad Subtraction

-34

4) $-5^2 + 12 \div -6 =$ -27

$-25 + -2$

-27

5) $-66 + 12 \div -6 =$ -68

$-66 + -2$

-68

6) $(-10 - 8)^2 \div (-6)^2 =$ 9

$-18^2 \div -6$

$324 \div 36$

7) $-4^2 + (-4)^2 =$ 0

is this $-(4^2)$ Yes

$-16 + 16$

8) $2 \bullet -3^3 - -12 =$ -42

$2 \bullet -27 + 12$

$-54 + 12$

Don't need to do

9) $8 - (-2)^4 + -13 =$ -21

$8 - 16 + -13$

$8 - 29$

-21

10) $-2^5 \div (-2)^5 =$ 1

$-32 \div -32$

11) $-14 + -2 \bullet -3 - 2^4 =$ -24

$-14 + 6 + -16$

$-30 + 6$

-24

Math Error

12) $(-14 + -2)(-3 + 2)^4 =$ -16

$-16 \bullet (-1)^4$

$-16 \bullet 1$

Write each of these summation problems in **expanded form** and find the **sum**.

13) $\sum_{i=-1}^{4} (3i)^2$

$3(-1)^2 + 3(0)^2 + 3(1)^2 + 3(2)^2 + 3(3)^2 + 3(4)^2$

$-3^2 + 0^2 + 3^2 + 6^2 + 9^2 + 12^2$

$-9 + 0 + 9 + 36 + 81 + 144 = 279$

14) $\sum_{n=-2}^{3} 3n$

$3(-2) + 3(-1) + 3(0) + 3(1) + 3(2) + 3(3)$

Never finished

$-6 + -3 + 0 + 3 + 6 + 9$

$-9 + 18 = 9$

15) $\sum_{i=-3}^{2} -3i - 1$

$-3(-3) - 1 + -3(-2) - 1 + -3(-1) - 1 + -3(0) + 1 + -3(1) - 1$

$+9 - 1 + 6 - 1 + 3 - 1 + 0 - 1 - 3 - 1 + -6 - 1$

$-3(2) - 1$

16) $\sum_{i=1}^{5} -2i$

$-2(1) - 2(2) - 2(3) - 2(4) - 2(5)$

$-2 - 4 - 6 - 8 - 10$

-30

Use **summation notation** to write the given **sums** and **evaluate**.

17) $-1 + -4 + -9 + -16 =$

$-3 \quad -5 \quad -7$

$-5 + -25$

-30

$\sum_{x=1}^{4} -x^2$

18) $-3 + -1 + 1 + 3 + 5 =$

$-4 + 4 \quad +2$

5

$\sum_{x=-2}^{3} 2x - 1$

Then you do $-x$ and 1 num is -1

19) $-27 + -8 + -1 + 0 + 1 + 8 + 27 =$

$-36 + 36$

0

$\sum_{x=-3}^{3} x^3$

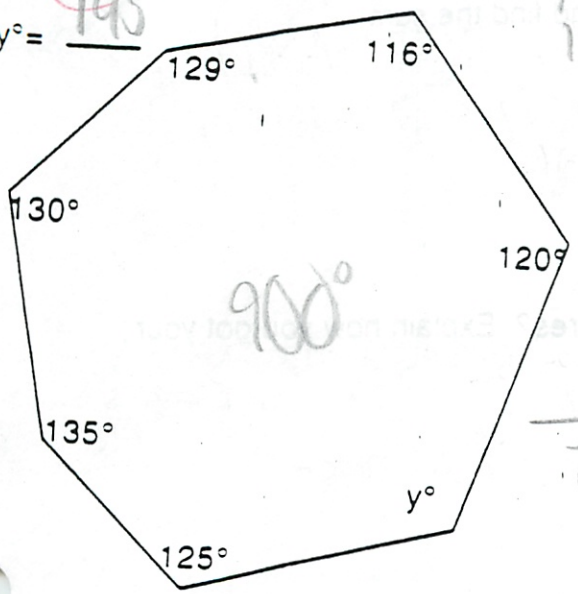
Thought it correct

Regular Polygons-Each Angle & Angle Sum

PATTERNS DAY 22

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

y° = 145°

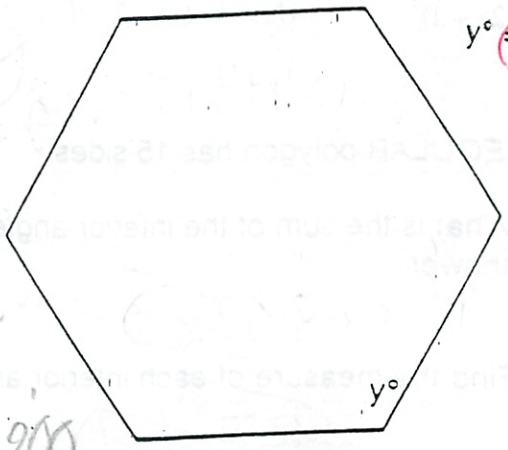


2
128
116
120
196
135
125
755

900
755
145

Below is a REGULAR POLYGON

y° = 120°



For a REGULAR Pentagon find:

a) The SUM of all the angles. 540°

b) The measure of any SINGLE angle. 108°

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

$25 - 3 \cdot 4 + 5$

$25 - 12 + 5$ $\quad 30 - 12$ (18)

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.

Add them up
Subtract (5×90)

89 / 123 / 141 / 96 / 138 / 587

720 − 587 = 133°

120 × 6 = 720

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

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

$2(0)+1^2 \quad 2(1)+1^2 \quad 2(2)+1^2 \quad 2(3)+1^2 \quad 2(4)+1^2 \quad 2(5)+1^2$

$0+1+2+1+4+1+6+1+8+1+10+1$

30 $\quad$ 286

quantity squared $1+3+5+7+9+11$

7. A REGULAR polygon has 15 sides.

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

~~1530°~~ 2340° I know that 6 sides = 720° and each side is 90° more

720 + 90 + 90 = 810

1530

b. Find the measure of each interior angle.

$15 \overline{)1530}$ $\quad$ ~~120°~~ $\quad$ 156

15

30

Formula $180(n-2)$

So 8-Gon

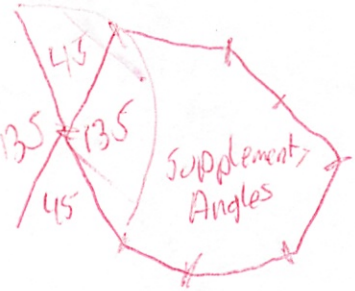
$180(8-2)$

$180(6)$

1080

÷6

135



1st Draft

November 3, 2004

Dear Mr. Trabosh:

I learned a lot in our patterns unit. This unit was mostly about numbers and finding clear patterns in them. We started with In-Out tables, where you have 1 rule that happens to all those numbers. Then I did some problems like getting down to one, and Marcella's Bagels. For these problems we kept repeated a pattern. For getting down to one, we had a conditional pattern, where there were 2 things that could have happened if the number was even or odd. In Marcella's Bagels, we had a 2 step pattern which we followed. After that we did, consecutive sums were I found that : This was a patter rule, and a formula which always worked. After that we worked with sigma notation, where we repeated a pattern over and over, increasing one number each time. We then worked with chiefs on hot and cold cubes. This story did not help me all that because I can remember the rules. I wish the story went and did division too with this story. After this, we worked with angles and finding patterns their, for example with diagonals and finding the sums of all the angles (180/(s-2) and the size of 1 angle ([180/(s-2]/2). After this we worked on a few more problems, to pull the unit all together. Overall, this unit has given me some formulas to solve general problems, and I was introduced to some new rules and topics, like that any) The major math skills I learned in this unit were: the factorial, absolute value, and, what I believe to be the most important, sigma notation.

Add Order of Opps + Evaluating

Add Recursive Formulas