Grading for Integrated Algebra and Geometry

Homework

Oral Presentation

Quizzes

Problems of the week (POW)

Tests

Portfolio

Materials needed for Integrated Algebra and Geometry

1) Binder - 1 - 1½ in

Pencil Case

2) Pencils

Book Sacks

3) Lined Paper

4) ¼ Inch Graph Paper

5) 12-inch Ruler with both Inch and Centimeter Scales

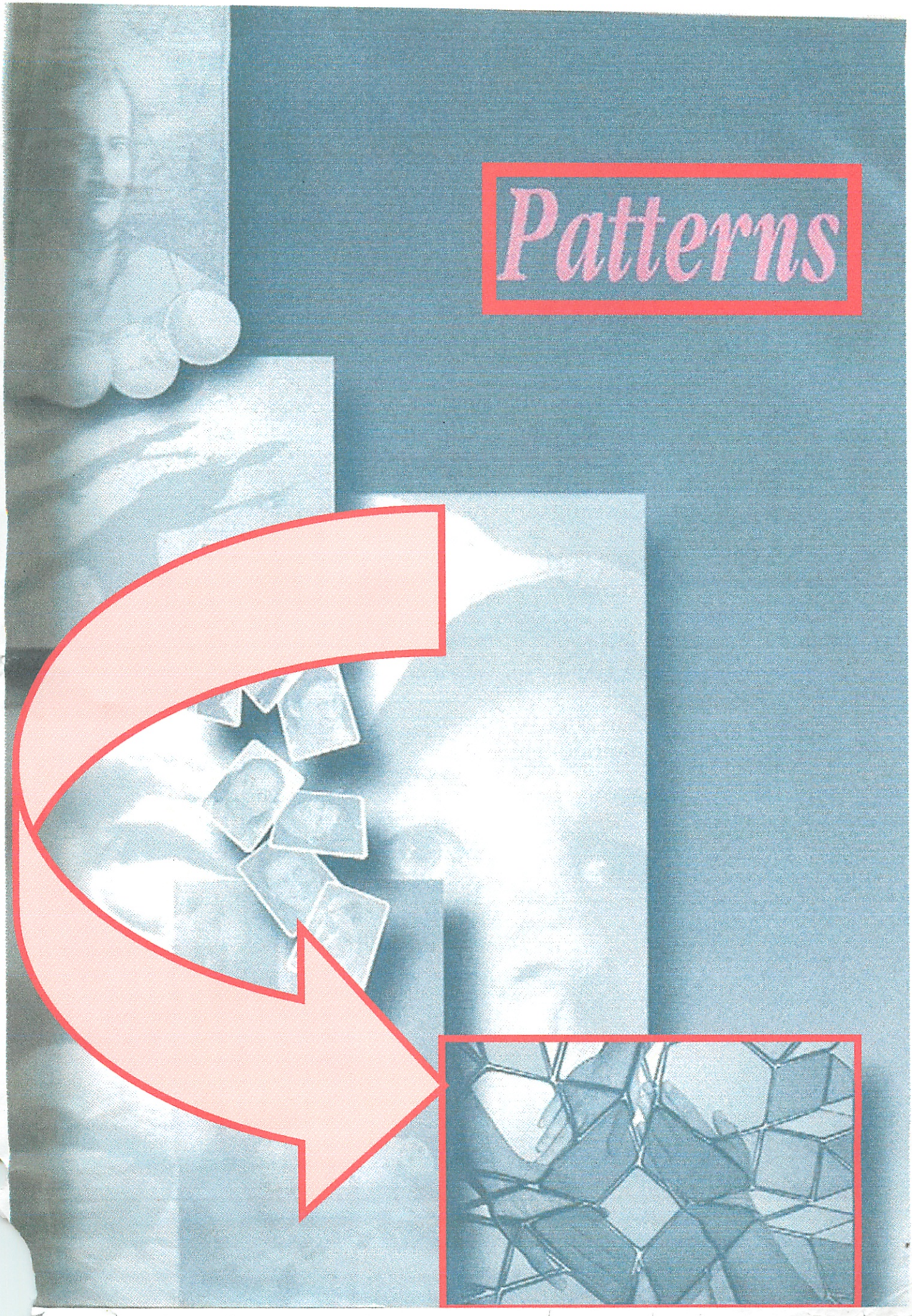
6) Colored Pencils

7) Protractor

8) Calculator (TI-83 PLUS)

Students do not need to bring their calculators to class, since graphing calculators will be provided. But they should have calculators available every night for use in the homework.

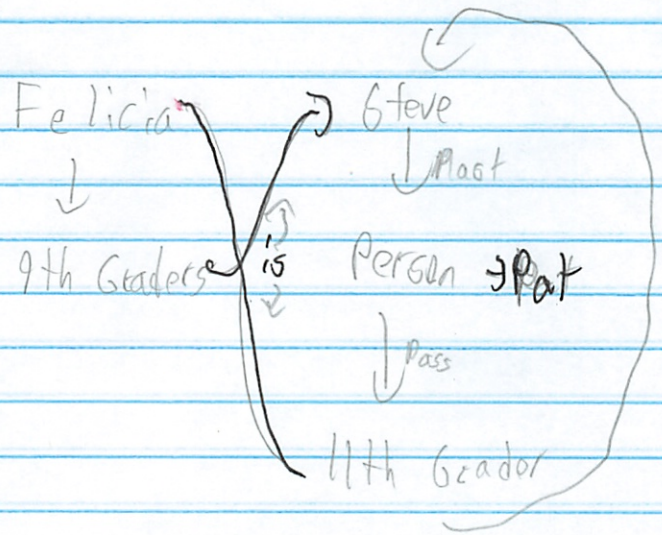
Patterns



Who's Who #2

Michael Plasmeier 9/9/04

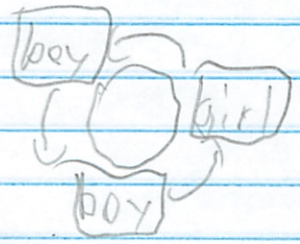
Problem = —
+ Work = —



Process: To solve this problem, I first put the facts in a diagram (above). I then looked at it to find a place with a _ grader to a name or to match a name to a blank grader, as everone has a name and grade. I then saw that Felicia could be the 11th grader, and Steve could be the 11th grader. The extra person must be Pat.

Solution: Steve / 9th Grade → Pat / 10th Grade → Felicia / 11th Grade

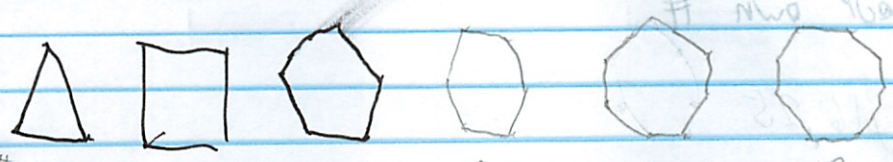
I know my solution is correct because all the people/grads are taken and the picture shows an order which looks like:



Describing Patterns #3

Michael Bloemeier 9/9/04

Key:
1 1
initial made up

1. 

# of sides: 3 4 5 6 7 8

2. 1, 1, 1, 2, 1, 3, 1, 4, 1, 5, 1, 6, 1, 7, 1, 8

1, a, 1, a+1, 1, a+1, 1

3. # and ds: ↑ ↓ ↓ ↑ ↑↑ ↓↓↓↓ ↑↑↑↑↑ (↓×6)(↑×7)

UP down

↑ = odd ↓ = even

each time add 1 arrow, and alternate up/down

4. 1, 2, 4, 8, 16, 32

double the prevous #

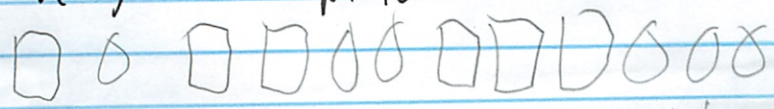
5. 1, 3, 5, 7, 5, 3, 1, 3, 5, 7, 5

Count odd # till 7, then add # down to 1, repeat

6. 1, 3, 7, 15, 31, 63, 127, 255

Multiply previous # ×2 and add 1

7. Make your own picture:



Do a square + circle, and add 1 of each, each time over

8. Make your own #.

1, 4, 9, 16, 25

Square #'s starting at 1 ($1^2, 2^2, 3^2, 4^2 \ldots$)

Notes 1

$-3^2 + (-3)^2$

9/9

The opposite of 3 to the 2nd power plus negitive 3 to the 2nd power

My Way

$-3^2 + (-3)^3$

$-9 + 3^2$

$-9 + 9$

0

His Way $-9 + 9$

0

$-27 - (-1)^2 - (-2)^2 \div 8$

9/10

My Way

$-27 - 1 - 8 \div 8$

$-27 - 1 - 8$

-28

Powers ×

Napp

if Even its +

if Odd its −

$(-1)^2 = -1 \times -1 = 1$

(of)

$(-2)^3 = -2 \times -2 \times -2$

PEMDAS

His Way

$-27 - 1 + 8 \div 8$

$-27 - 1 + 1$

-27

$-2^2 - 8 + (-3)^3 - 4 \div 2$

$-4 - 8 + -27 - \frac{4}{2}$

$-12 + -27 - 2$

Over

~~-13 - 2~~

~~-15~~ -41

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

$\cancel{28} + 9 - 2 + (9 - (-8))^3$

-64 they are +

$\cancel{28} + 9 - 2 + 3\ 284$

-64 -55

$3\ 7 - 2 + 3\ 289$

$-57 + 289$

38 232

In	Out
2	5
3	8
4	11
5	14
6	17
9	26

+1 +1 +3 +3

Multiply by 3 + Subtract 1

~~I × 3 - 1 = O~~

y = 3x - 1

y = out x = in

Graphing for Slope

P2

in	out
0	4
2	8
-1	2
3	~~16~~ 10

Multiplay by 2 + Add 4

~~Add 2 square~~ it

$y = 2x + 4$

Put it in order

$y = 2x + 4$

-1	2
0	4
2	8
3	10

+1 +2 +2 +4 +1 +2

In	Out
0	1
1	2
2	5
5	26

✓ Not good

$m = y^2 + 1$ quadratic equation

y = in

m = out

! = factorial

$2! = 2 \times 1$

$8! = 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 40{,}320$

Michael Plasmeier
9/12/2004
P.D.:

POW Beginnings

HW # 4

1. *1. Problem Statement:* The problem in this POW is that there are eggs, that only fit in groups [boxes] of 7. When places in groups of 2, 3, 4, 5, 6, there is **1** egg left over. You need to find out how many eggs there are.

2. The answer is not correct, because 49 divided by 4 gives you a remainder of 4, not 1.

Test		2	3	4	5	6	7
	49 48 r1	16 r1	12 r1	**9 r4**	8 r1		7

Trial of 49

Inside Out (#5)

Michael Plasmeier 9/13

1.

In	Out
2	4
3	6
11	22
27	54
9	18

Need an explanation

"The Out is double the In"

$y = x2$

2.

In	Out
2	7
4	13
7	22
10	31
12	37
25	76

$x = in$
$y = out$
for all

$\leftarrow y = 3x + 1$

"The Out is 1 plus triple the In"

3.

In	Out
house	4
cup	2
writer	5
elephant	7
spin	3
mathematics	10
plug	3
paragraph	8
a	0

$x + 1 = x$

"The In is a word with 1 less number than the out"

4.

In	Out
(1 eye)	3
(2 eyes)	11
(3 eyes)	15
(4 eyes)	7

"The Out is 4 x the # of eyes minus 1"

$y = 4x - 1$

Rules for Back

45 6. "The Out is equal to 2 times the In plus 5" $y = 2x + 5$

76 7. "The Out is the factoral of the # of stars" $y = x!$

Over →

5.

In	Out
division	I
ever	E
opportunity	O
toast	A
safe	E
people	O
mathmatics	E
the	(can't be done)

"The Out is the 2nd vowel in the In." capalized

6.

In	Out
0	5
3	11
10	25
7	19
20	

In	Out
5	x
6	10
7	12
9	16
12	22

$y = 2(x - 1)$

$y = x + (x * 2)$

$y = 2x - 2$

Equvlant Expressio

7.

In	Out
xxx	6
xx	2
xxxxx	120
xxxxxx	

In	Out
10	7
4	4
5	4.5
15	9.5
20	12
18	11

$y = x \div 2 + 2$

$y = \frac{x}{2} + 2$

In	Out
6	5
13	9
8	6
12	7
15	
	12

$y = \frac{x}{3} + 3$

In	Out
18	81
12	36
9	20.25
16	
	4
21	
	100

$y = (x \div 2)^2$

In	Out
1	3
3	8
4	26
6	222

$x! + 2 = y$

In	Out
2	837
3	1257
8	3329
	4877098

$y = 45x + 7$ ← Constants

Coeffecients ↑ variables

Notes p3

9/13

Expressions - no =
Equation - have =

Independent variabal

	p	y ⇐ depended variabals
2p	3	6
	5	10
	8	16

factor - division
distribution - multiplaction

$3(x+2)$ distrubiting propiters

$3x+6$ multiply each

$4x^2 - 8x$ factoring

$4x(x-2)$

9/17

In	Out
0	0
1	22
2	44
3	66
4	88
5	110
6	132
7	154

$22 \times 5 = 110$

$22 \times 6 = 132$

$22 \times 7 = 154$

x by 22

$y = 22x$

9/12

In	Out
0	2
1	3
2	6
3	11

+1 +1 +1

+1 +3 +5

+2 +2

might help

$y = x^2 + 2$

$x^2 = 9$

$x = 3$ or -3

IMP

Worksheet

1

Getting to 1 #6

Michael Plasmeier 4/14

1. a. 6, 3, 10, 5, 16, 8, 4, 2, 1
   b. 9, 28, 14, 7, 22, 11, 34, 17, 52, 26, 13, 40, 20, 10, 5, 16, 8, 4, 2, 1
   c. 21, 64, 22, 11, 34, 17, 52, 26, 13, 40, 20, 10, 5, 16, 8, 4, 2, 1
   d. 33, 100, 50, 25, 76, 38, 19, 58, 29, 88, 44, 22, 11, 34, 17, 52, 26, 13, 40, 20, 10, 5, 16, 8, 4, 2, 1

"n" 3 5

2. a. ~~4~~ 3 b. ~~20~~ 19 c. ~~18~~ 17 or 7 d. ~~27~~ 26 Don't count first 1.

3. 3 | 8, 4, 2, 1
   4 | 16, 8, 4, 2, 1
   5 | 5, 16, 8, 4, 2, 1

4. You could work backwards by multiplying by 2 or 2^{100} or pick a very high odd #.

5. The pattern always jumps onto a track at 16, but prior to that

Pow

#1

Marcella's Bagels

9/15

Store

Half +2

Half +2

Half +2

Home

2

Check 44 88

22 · 2 = 20 ~~44 - 2 = 42~~

10 · 2 = 8

4 · 2 = 2

2

(2 + 2) × 2 = (8 + 2) × 2 = (20 + 2) × 2 44 At the Store

Start

#7

Worksheet 2

Michael Plasmeier

9/17

1. $(8+3)\times 2^3$
   11×8
   88

2. $54-2\times 3^3+4^3$
   $54-2\times 27+64$
   $54-54+64$
   $0+64$
   64

   $16 \times 4 = 4$
   $27 \times 2 = 54$

3. $15-9\div 3+6\times 2$
   $15-3+12$
   $12+12$
   24

4. $12+12\div 12$
   $12+1$
   13

5. $4\times 9-6\div 3+1$
   $36-2+1$
   $34+1$
   35

6. $14\times[12\div(3+3\times 3)]$
   $14\times[12\div(3+9)]$
   $14\times[12\div 12]$
   14×1
   14

7. $9^2+2^3\times 5$
   $49+8\times 5$
   $49+40$
   89

8. $4\times(9-6)\div 2+4=10$

9. $(6+3)\times 4+3+(2^3\times 2)-7=48$
   Don't Need

10. $(10-4+3)\times 4+5\times 2=46$

Name Michael Plasmeier

Date 9/17/04

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

1) $(8 + 3) \bullet 2^3 =$ _____

2) $54 - 2 \bullet 3^3 + 4^3 =$ _____

3) $15 - 9 \div 3 + 6 \bullet 2 =$ _____

4) $12 + 12 \div 12 =$ _____

5) $4 \bullet 9 - 6 \div 3 + 1 =$ _____

6) $14 \bullet [12 \div (3 + 3 \bullet 3)] =$ _____

7) $92 + 2^3 \bullet 5 =$ _____

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

8) $4 \bullet 9 - 6 \div 2 + 4 = 10$

9) $6 + 3 \bullet 4 + 3 + 2^3 \bullet 2 - 7 = 48$

10) $10 - 4 + 3 \bullet 4 + 5 \bullet 2 = 46$

Notes

9/20

a. $\frac{8!}{(6-2)! \times 2!}$

$\frac{30240}{24 \times 2}$

$\frac{30240}{48}$

$8 \times 7 \times 6 \times 5$

252×5

1260×4

5040×3

15120

30240

$48 \overline{)30240}$

b. $\frac{6!}{4-3! \times 2!}$

$\frac{720}{1 \times 2}$

$\frac{720}{2}$

360

$6 \times 5 \times 4$

120×3

360

720

His Way

$\frac{8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{2 \times 4 \times 3 \times 2 \times 1}$

Do this to get answer

9/21

$\sqrt{4} = 2 = ? \times ? = 4$

$\sqrt[3]{8}$ $? \times ? \times ? = 8$ $= 2$ = The cubed root of 8

$\sqrt[4]{8} = x \cdot x \cdot x \cdot x = 8$ = The forth root of 8

$y^3 = y \cdot y \cdot y$

Uncertain Ans #9

9/21

1. $(12-8)\times(1+7)=32$
2. $8-(15+6)\div 3=1$
3. $(7+3)^2=100$
4. $(24+16)\div(8-4)=10$
5. $20\div(7-2)+5^2\times 3=79$
6. $7-5\times 8+6\div 2$
   $7-40+3=-36$
7. $2\times 8+3=19$
   $2\times 14\div 2=14$

7. $4+9-6\div 2\times 5+1$
   $4+9-3\times 5+1=-1$
   ~~$13-6\div 2\times 5+1=1$~~
   $4+9-6\div 2\times 6=31$
   $4+3\div 2\times 5+1=12.5$

NAME: Michael Plasmeier IMP I DATE: 9/21

a) Complete the In-Out table

$y = 4x - 7$

Out = 4·In -7

In	Out
.6	~~-5.4~~ -4.6
4	~~17~~ 9
$2\frac{3}{5}$	~~14.4~~ 3.2
.3	~~-6.2~~ -5.8
4.9	12.2

a) Complete the In-Out table

Out = In-4 $y = x - 4$

In	Out
2	-2
-5	-9
$3\frac{1}{4}$	~~0.25~~ or $-\frac{3}{4}$
5.7	1.7
-8	-12

a) Complete the In-Out table

Out = $\frac{2}{5}$·In + 1

In	Out
0	1
1/2	$1\frac{1}{5}$
2/3	$1\frac{4}{15}$
3/4	$1\frac{3}{10}$
$16\frac{2}{3}$	$5\frac{3}{5}$
$7\frac{2}{3}$	$\frac{23}{3}$
5/16	$1\frac{1}{8}$

a) Complete the In-Out table

$y = 4x - 3$

Out = 4·In - 3

In	Out
.9	6
3/4	0
.25	-2
	3
$1\frac{1}{2}$	
3	9

Had it

a) Complete the In-Out table

$y = 4x$

Out = 13-4·In ← Do x 1st not this

In	Out
-2	~~-18~~ 21
-3	~~-27~~ 25
$-\frac{7}{9}$	-7
5/4	~~$1\frac{1}{4}$~~ $8\frac{1}{4}$
.25	~~$1\frac{3}{4}$~~ $12\frac{1}{4}$

a) Complete the In-Out table

Out = 5·In + 1/3

In	Out
.2	$1\frac{1}{3}$
2/3	$3\frac{2}{3}$
7/10	$3\frac{5}{6}$
0	1/3
1/5	$1\frac{1}{3}$

a) Complete the In-Out table

Out = 2·In+1

In	Out
5	11
-3	-5
$2\frac{1}{2}$	6
-2.7	-4.4
8	17

a) Complete the In-Out table

Out = 2·In - .3

In	Out
.2	.1
.5	.7
2.3	4.3
3.5	7.3
4.6	8.9
5.7	~~11.4~~ → 11.1

Out = 2 In -3

In	Out
.2	2.6
.5	-2
2.3	1.6
5.15	7.3
4.6	6.2
5.7	9.4

Quiz

9/22

Notes

9/23

1, 2, 3, 4, 5, 6 ...

Counting or Natural Numbers

0, 1, 2, 3, 4, 5, 6

Whole #s

-5, -4, -3, -2, -1, 0, 1, 2, 3

Integers

Reals

Decimals → Terminate, Repeate

Could be fractions

Reals

Rational

Irrationas

π

$\sqrt{2}$

$\sqrt{3}$

Consecutive Sums

9/23

1+2=2
2+3=5
3+4=7
4+5=9
5+6=11

Add 2

1+2+3=6
4+5+6=15
7+8+9=24
10+11+12=33

+9

1+2=3 +4
3+4=7 +4
5+6=11 +4
7+8=15

1+2+3+4=10 +16
5+6+7+8=26 +16
9+10+11+12=42

1+2+3+4+5=15
2+3+4+5+6=20
3+4+5+6+7=25
4+5+6+7+8=30

+5

1+1=1 +2
1+2=3 +6
3+3=9 +4
9+4=13 +5
13+5=18 +6
18+6=24 +7
24+7=31 +8
31+8=39

Goes up 1

not consecutive

3[10+11+12=33] +3
9[30+33+36=99] +2
60+66+72=198

Not consecutive

Act the same

x16 (1+2+3+4+5=15 +60
10+11+12+13+14+15=75 +60
20+21+22+23+24+25=135 +60
30+31+32+33+34+35=195) +60

When you add 2 numbers next to each other. (Each 1 is a problem x2) you add 2, However if you don't use a # 2x then it goes up 4. When you add 3 #, (each one 1x) then the diffrence goes up 1, but then 4 # the diffrence goes up 16.

When you add 5 # (5x) then it goes up 5. When you add x each 1st place x10, then the answer goes up 66

His Answers

9/24

Any odd number can be found using consecutive sums of 2 Except 1

ex: $13 = 6+7$

$51 = 25+26$

$201 = 100+101$

Any 3 # sequance is middle # x3

$2+3+4 = 9 = 3\times3$ +9

$5+6+7 = 18 = 6\times3$

1 # + by 3

$8+9+10 = 27 = 9\times3$

$11+12+13 = 36 = 12\times3$

Notes

$\sum$ = Sigma + Summation

$$\sum_{x=1}^{5} x$$ The sum of all the x from 1 to 5

$1+2+3+4+5 = 15$

$$\sum_{x=0}^{3} 2x^2 = 2(0)^2 + 2(1)^2 + 2(2)^2 + 2(3)^2 = 28$$

The sum of all the $2x^2$ from 0 to 3

HW
#13

Name Michael Plasencia

Date 9/24

Patterns Unit
In/Out tables #2

Complete the In-Out tables.

1) Out = 3 • In + 7

IN	OUT
0.6	8.8
4	19
$2\frac{3}{5}$	14.8
0.3	7.9
1.73	12.2

$\frac{13}{5}$ $\frac{3}{1}$ $\frac{39}{5}$ 7.8

$1.73\overline{3}$ $3\overline{)5.2\,0\,0}$

or $1\frac{11}{15}$

2) Out = In^2 - 4

IN	OUT
2	0
-5	~~-29~~ 21
$3\frac{1}{4}$	~~58~~ $6\frac{9}{16}$
5.7	28.49
-2.82	-12

5.7 × 5.7 = 32.49

32.49 - 4

No answer

3) Out = $\frac{2}{5}$ • In - 1

IN	OUT
0	-1
$\frac{1}{2}$	$-\frac{4}{5}$
~~$\frac{2}{3}$~~	$-\frac{11}{15}$
$21\frac{2}{3}$	$7\frac{2}{3}$
$\frac{5}{16}$	$-\frac{7}{8}$

$\frac{1}{2}$ $\frac{2}{5}$ $\frac{1}{5}$

$\frac{2}{3}$ $\frac{2}{5}$ $\frac{4}{15}$

$\frac{5}{16}$ $\frac{8}{5}$ $\frac{1}{8}$

4) Out = 4 • In + 3

IN	OUT
0.9	~~3.36~~ $\frac{69}{20}$
$\frac{3}{4}$	~~6~~ $\frac{49}{36}$
0.25	4
$1\frac{1}{2}$	7
1.5	9

$\frac{3}{14}$ $\frac{3}{1}$

$\frac{3}{12}$ $\frac{5}{1}$

$\frac{6}{4}$

5) Out = 3 • In

IN	OUT
-2	-6
-3	-9
$-2\frac{1}{3}$	-7
$\frac{5}{4}$	$3\frac{3}{4}$
0.25	.75

$\frac{5}{4}$ $\frac{3}{1}$ $\frac{15}{4}$ $3\frac{3}{4}$

6) Out = 3 • In + $\frac{1}{3}$

IN	OUT
0.2	$\frac{14}{15}$
$\frac{2}{3}$	$2\frac{1}{3}$
$\frac{7}{10}$	$2\frac{13}{30}$
0	$\frac{1}{3}$
$\frac{1}{5}$	$\frac{16}{15}$

$\frac{2}{3}$ $\frac{2}{1}$ 2

$\frac{7}{10}$ $\frac{3}{1}$

$\frac{1}{5}$ $\frac{3}{1}$ $\frac{3}{5}$ $\frac{9}{15}$

$\frac{2}{3}$ $\frac{5}{15}$

$\frac{14}{15}$

7) Out = 3 • In - 1

IN	OUT
5	14
-3	-10
$2\frac{1}{2}$	$6\frac{1}{2}$
-2.7	~~-8.1~~ -.91
$5\frac{1}{3}$	17

$\frac{5}{4}$ $\frac{3}{1}$

$\frac{16}{3}$

8) Out = In ÷ 3

IN	OUT
0.2	~~.6~~ $\frac{1}{15}$
0.5	$\frac{1}{6}$
2.3	$\frac{23}{30}$
7.3	1.9
5.7	$\frac{57}{30}$

21.9

$\frac{2}{3}$ $\frac{2}{30}$ = $\frac{1}{15}$

$\frac{5}{3}$ $\frac{5}{30}$ $\frac{1}{6}$

$\frac{23}{3}$ $\frac{23}{30}$

State the rule for each In-Out table.

9) RULE:

$y = x3 + 1$

IN	OUT
6	17
4	11
11	32
9	26
1	2
24	71
16	47

3)46

10) Rule:

Letter after

In	Out
CHP	DIQ
IMT	JNU
WED	XFE
BUN	CVO
HOG	IPH
YET	ZFU
EKX	FLY

11) Rule:

~~$y = x^3$~~

In	Out
11	484
2	16
5	100
8	256
9	324
10	~~1000~~ 400
11	144

$y = (2x)^2$

$y = 4x^2$

12) RULE:

$y = x3$

IN	OUT
-3	-9
5	15
$3\frac{2}{3}$	11
-2.4	-7.2
15	45

Pow #2

Pattern
Quiz 9/24

Notes

$$\sum_{x=2}^{5} 2x$$

The sum of all the 2xs from x=2 to 5.

don't say

$2(2)+2(3)+2(4)+2(5)$

$4+6+8+10$

28

$$\sum_{w=3}^{6} (w-1)^2$$

The sum of $(w-1)^2$ from w=3 to 6

$(3-1)^2+(4-1)^2+(5-1)^2+(6-1)^2$

$2^2+3^2+4^2+5^2$

$4+9+16+25$

54

write this in sigma

$4+5+6+7+8$

$$\sum_{x=4}^{8} x$$

$$\sum_{x=0}^{4} x+4$$

w x=0

#11

Pratice

In	Out
-1	-7
2	2
1	-1
0	-4
n	3n-4
$5\frac{1}{3}$	12
	16

The Out is 3 times the In minus 4

$\times 3 - 4$

9/29

HW 9/29

1. $\sum_{x=3}^{9} x = 3+4+5+6+7+8+9 = 42$

2. $\sum_{w=3}^{8} (w^2+2) = 3^2+2+4^2+2+5^2+2+6^2+2+7^2+2+8^2+2$

$9+2+16+2+25+2+36+2+49+2+64+2$

$11+18+27+38+51+66$

211

3. Write i

$\sum_{x=1}^{8} \left(\frac{4}{x+x}\right) =$

$\frac{4}{2}+\frac{4}{4}+\frac{4}{6}+\frac{4}{8}$

$2+1+\frac{2}{3}+\frac{1}{2}$

$3+\frac{7}{6}$

$4\frac{1}{6}$

#12

Cubes p39

Do it the Chefi Way #13

9/30

1. a $-3 + 5 = +2$
   b $5 - -4 = +9$
   c $(2 \times 6) = -12$
   d $-(4 \times 7) = -28$
   e $-(3 \times -6) = +18$

2a Add 4 hot cubes and take away 4 cold cubes = 7°

b. Add 6 cold cubes and 4 cold cubes = -10°

c Take away 10 bunches of 5 cold cubes = 50°

d Add 4 groups of 8 cold cubes = -32°

HW #13

1 Add 6 cold cubes and 9 cold cubes = -15°
4 Add 4 cold cubes and take away 6 hot cubes = -10°
7 Take Away 3 groups of 4 cold cubes = 12°
2 Add 7 cold cubes and take away 10 cold cubes = 3°
5 Add 3 hot cubs and Add 7 cold cubes = -4°
8. Add 8 hot cubes and take away 12 cold cubes = 20°
3 Add 5 bunches of 2 cold cubes = -10°
6 Take Away 6 bunches of 9 hot cubes = -54°
9 Add 12 cold cubes and 5 hot cubes = -7°

Name : Michael Plasmeier

Sigma Notation Worksheet IMP1

Date : 10/1

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

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

2) $\sum_{k=1}^{5} 6 =$

3) $\sum_{v=0}^{3}(3v-1) =$

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

5) $\sum_{k=0}^{4} 9k =$

6) $\sum_{k=0}^{3} \frac{1}{k^2+1} =$

7) $\sum_{t=2}^{7}(5t)^2 =$

8) $\sum_{x=2}^{6}(x+2)(x-3) =$

Use the summation notation to write the given sums.

9) $\frac{5}{1+1}+\frac{5}{1+2}+\frac{5}{1+3}+\ldots+\frac{5}{1+15}=$ Means Solve it

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

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

12) $2+2+2+2+2=$

1. $2\times1 + 2\times2 + 2\times3 \times 2\times4 + 2\times5$

2 4 6 8 10

30

2. $6+6+6+6+6$

36

3. $3\times0-1 + 3\times1-1 + 2\times3-1 + 3\times3-1$

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

14

4. $0^2 + 1^2 + 2^2 + 3^3$

$0+1+4+9$

14

5. $9\times0 + 9\times1 + 9\times2 + 9\times3 + 9\times4$

$0 + 9 + 18 + 27 + 36$

90

6. $\frac{1}{0^2+1} + \frac{1}{1^2+1} + \frac{1}{2^2+1} + \frac{1}{3^2+1}$ $1\frac{3}{10}$

$\frac{1}{1} + \frac{1}{2} + \frac{1}{5} + \frac{1}{10}$

$1\frac{3}{10}$ or $1\frac{4}{5}$

7. $(5\times2)^2 + (5\times3)^2 + (5\times4)^2 + (5\times5)^2 + (5\times6)^2 + (5\times7)^2$

625

$100 + 225 + 400 + \cancel{325} + 900 + 1225$

~~2175~~ 3475

8. $(2+2)\times(2-3) + (3+2)\times(3-3) + (4+2)\times(4-3) + (5+2)\times(5-3)$

$-4 + 0 + 6 + 14$

$16 + (6+7)\times(6-3)$

8 3

$16 + 24$

Over →

9. $\sum_{x=1}^{15} \frac{8}{1+x}$

10. $\sum_{x=1}^{9} 4(x)$ $= 180$

11. $\sum_{x=1}^{5} 2x - 1$

12. $\sum_{x=1}^{5} 2$ $- 10$

Solve them too

Warm Up

10/1

The sums of ~~4~~ from 1 to 5

~~1.~~ $\sum_{x=1}^{5} 4$ = ~~can't be done~~ $4+4+4+4+4$ 20

$\sum_{x=0}^{3} 8 = 8+8+8+8 = 32$

x=0 counts

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

8 + 27 + 64

99

$\frac{16}{4} = \frac{4}{4}$

64
27
+8
99

3. $\frac{4}{1} + \frac{4}{3} + \frac{4}{5} + \frac{4}{7} = \sum_{x=1}^{7} \cancel{\frac{4}{x}}$ $\frac{4}{x^2-1}$

$y = 2x - 1$

10/5

Write Up

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

7 + 12 + 19 + 28 + 39

+5 +7 +9 +11

each +2

not same means its powers

Michael Plasmeier

Sigma Notation 1

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

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

2. $\sum_{i=0}^{3}(3i \pm 1) =$ $3\cdot 0+1+3\cdot 1+1+3\cdot 2+1+3\cdot 3+1$ $0+1+3+1+6+1+9+1$ (22)

And $3\cdot 0-1+3\cdot 1-1+3\cdot 2-1+3\cdot 3-1$ $0-1+3-1+6-1+9-1$ (14)

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

4. $\sum_{n=2}^{6}(5n)^2 =$ $(0\pm 1)+(3\pm 1)+(6\pm 1)+9\pm 1$ $1+-1+4+2+7+5+10+8$ (36)

Do All or Both

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

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

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

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

Do Both

$(2+1)\cdot(2\pm 1)+(3+1)\cdot(3\pm 3)$ $3\times 5+3\times 1+4\times 6+4\times 0$ $15+3+24+0$ 36

$(4+1)\times(4\pm 1)+(5+1)\cdot(5\pm 1)$ $5\times 5+5\times 3+6\cdot 6+6\cdot 4$ $25+15+24+12$ $36+100$ (136)

Use the summation notation to write the given sums.

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

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

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

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

Sigma Notation 2

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

1. $\sum_{i=1}^{4}(3i) =$

2. $\sum_{i=0}^{3}(5i+2) =$

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

4. $\sum_{n=2}^{5}(3n)^2 =$

5. $\sum_{k=3}^{6}5k =$

6. $\sum_{i=1}^{4}i^3 =$

7. $\sum_{k=1}^{3}\frac{1}{k^2+3} =$

8. $\sum_{k=2}^{5}(k+2)(k\pm1) =$

$(2+2)\times(2\pm1)+(3+2)\cdot(3\pm1)+(4+2)\cdot(4\pm1)+(5+2)(5\pm1)$

$4\times3+4\times1+5\cdot4+5\cdot2+6\cdot5+6\cdot3+7\cdot6+7\cdot4$

$12+4+20+10+30+18+42+28$

$16+60+60+28$

(144)

Use the summation notation to write the given sums.

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

10. $5(3)+5(4)+5(5)+\ldots+5(9) =$

11. $2+4+6+8+10 =$

12. $7+7+7+7 =$

Side 1

10/4

1. $2\cdot1 + 2\cdot2 + 2\cdot3 + 2\cdot4 + 2\cdot5$

$2 + 4 + 6 + 8 + 10$

30

3. $9 + 9 + 9 + 9$

36

4. $(5\cdot2)^2 + (5\cdot3)^2 + (5\cdot4)^2 + (5\cdot5)^2 + (5\cdot6)^2$

$10^2 + 15^2 + 20^2 + 25^2 + 30^2$

$100 + 225 + 400 + \cancel{1375} + 900$

2250 625 3 175

5. $6\cdot1 + 6\cdot2 + 6\cdot3 + 6\cdot4 + 6\cdot5$

$6 + 12 + 18 + 24 + 30$

90

6. $0^2 + 1^2 + 2^2 + 3^2 + 4^2$

$0 + 1 + 4 + 9 + 16$

30

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

$\frac{1}{1} + \frac{1}{2} + \frac{1}{5}$

$\frac{7}{10}$

9. $\sum_{x=1}^{15} \frac{5}{1+x} = \frac{5}{1+1} + \frac{5}{1+2} + \frac{5}{1+3} + \frac{5}{1+4} + \frac{5}{1+5} + \frac{5}{1+6} + \frac{5}{1+7} + \frac{5}{1+8} + \frac{5}{1+9} + \frac{5}{1+10} + \frac{5}{1+11} + \frac{5}{1+12} + \frac{5}{1+13} + \frac{5}{1+14} + \frac{5}{1+15}$

$\frac{5}{2} + \frac{5}{3} + \frac{5}{4} + \frac{5}{5} + \frac{5}{6} + \frac{5}{7} + \frac{5}{8} + \frac{5}{9} + \frac{5}{10} + \frac{5}{11} + \frac{5}{12} + \frac{5}{13} + \frac{5}{14} + \frac{5}{15} + \frac{5}{16}$

15.758163

10. $\sum_{x=1}^{9} 4x = 4\cdot1 + 4\cdot2 + 4\cdot3 + 4\cdot4 + 4\cdot5 + 4\cdot6 + 4\cdot7 + 4\cdot8 + 4\cdot9$

$4 + 8 + 12 + 16 + 20 + 24 + 28 + 32 + 36$

180

Over →

11. $\sum_{x=1}^{5} 2x-1 = (1\cdot2-1)+(2\cdot2-1)+(2\cdot3-1)+(2\cdot4-1)+(2\cdot5-1)$

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

$1+3+5+7+9$

25

12. $\sum_{x=1}^{5} 2 = 2+2+2+2+2$

10

Side 2

1. $(3\times1)+(3\times2)+(3\times3)+(3\times4)$

$3+6+9+12$

30

2. $(5\cdot0+2)+(5\cdot1+2)+(5\cdot2+2)+(5\cdot3+2)$

$0+2+5+2+10+2+15+2$

38

3. $3+3+3+3$

12

4. $(3\cdot2)^2+(3\times3)^2+(3\cdot4)^2+(3\cdot5)^2$

$6^2+9^2+12^2+15^2$

$36+27+144+225$

432 486

5. $5\cdot3+5\cdot4+5\cdot5+5\cdot6$

$15+20+25+30$

90

6. $1^3+2^3+3^3+4^3$

$1+8+27+\cancel{56}\ 64$

108 $\cancel{0+180}$

$48 \times 12 = 96 + 560 = 656$

7. $\frac{1}{1^2+3}+\frac{1}{2^2+3}+\frac{1}{3^2+3}$

$\frac{1}{4}+\frac{1}{7}+\frac{1}{12}=\frac{10}{21}$

12. $\sum_{x=1}^{4} 7 = 7+7+7+7$

28

9. $\sum_{x=1}^{15} \frac{2}{3+x} = \frac{2}{3+1}+\frac{2}{3+2}+\frac{2}{3+3}+\frac{2}{3+4}+\frac{2}{3+5}+\frac{2}{3+6}+\frac{2}{3+7}+\frac{2}{3+8}+\frac{2}{3+9}+\frac{2}{3+10}+\frac{2}{3+11}+\frac{2}{3+12}+\frac{2}{3+13}+\frac{2}{3+14}+\frac{2}{3+15}$

$\frac{1}{2}+\frac{2}{5}+\frac{2}{6}+\frac{2}{7}+\frac{2}{8}+\frac{2}{9}+\frac{2}{10}+\frac{2}{11}+\frac{2}{12}+\frac{2}{13}+\frac{2}{14}+\frac{2}{15}+\frac{2}{16}+\frac{2}{17}+\frac{2}{18}$

10. $\sum_{x=3}^{9} 5x = 5\cdot3+5\cdot4+5\cdot5+5\cdot6+5\cdot7+5\cdot8+5\cdot9$

$15+20+25+30+35+40+45$

210

11. $\sum_{x=1}^{5} 2x = 2+4+6+8+10$

30

3, 32, 35, 42, 49

Michael Plasmeier

Perform the following operations.

1. $4 - 3 + 1$
   1+1
2. $24 \div 2 \bullet 3$
   12×3
3. $4 - 3 - 1$
   1-1
4. $14 - 8 + 3 - 1$
   6+3-1
   9-1
5. $(5 - 2) \bullet 3^2$
   3×9
6. $9 - (4 - 2)^2$
   9-2²
   9-4
7. $14 - 2 \bullet 5 - 3$
   14-10-3
   4-3
8. $24 \bullet 4 \div 2$
   96÷2
9. $18 - 3^2$
   18-9
10. $28 - 2 \bullet 3^2 + 3^2$
    28-2×9+9
    28-18+9
11. $(21 - (16 - (5 - 3)))$
    21-16-2
    5-2
12. $15 - 9 + 5 - 3 + 1$
    6+5-3+1
    11-3+1
13. $72 \div 9 \div 4 \div 2$
    8÷4÷2
    2÷2
14. $4 \bullet 9 - 5 - 3 + 1$
    36-5-3+1
    31-3+1
15. $(12 - 3)^2 - 4^2 \div 2$
    (12-9)²-16÷2
    3²-8
    9-8

1. 2
2. 24
3. 0
4. 8
5. 27
6. 5
7. 1
8. 48
9. 9
10. 19
11. 3
12. 9
13. 1
14. 29
15. 1

Perform the following operations.

1. $8 - 3 + 1$
   $5 + 1$
2. $28 \div 7 \bullet 2$
   4×3
3. $8 - 6 \div 2$
   $8 - 3$
4. $18 - 8 + 3 - 1$
   $16 + 3 - 1$
   $13 - 1$
5. $5 + 2 \bullet 3^2$
   $5 + 2 \bullet 9$
   $5 + 18$
6. $9 - (5 - 2)^2$
   $9 - 3^2$
   $9 - 9$
7. $18 - 2 \bullet 5 + 3$
   $18 - 10 + 3$
   $8 + 3$
8. $9 \bullet 8 \div 2$
   $72 \div 2$
9. $3(5 - 3)^2$
   $3 \bullet 2^2$
   $3 \bullet 4$
10. $36 \div 4 \bullet 3^2 + 3^2$
    $9 \bullet 9 + 9$
    $81 + 9$
11. $(25 - (23 - (5 - 3)))$
    $25 - 23 - 2$
    $2 - 2$
12. $25 - 9 + 5 - 3 + 1$
    $16 + 5 - 3 + 1$
    $21 - 3 + 1$
13. $128 \div 8 \div 4 \div 2$
    $16 \div 4 \div 2$
    $4 \div 2$
14. $8 \bullet 9 - 5 - 3 + 1$
    $72 - 5 - 3 + 1$
    $67 - 5 - 3 + 1$
15. $(15 - 3^2)^2 - 4^2 \div 2$
    $(15 - 9)^2 - 16 \div 2$
    $6^2 - 8$
    $36 - 8$

1. 6
2. 12
3. 5
4. 12
5. 23
6. 0
7. 12
8. 36
9. 12
10. 90
11. 0
12. 19
13. 2
14. 60
15. 28

Perform the indicated operation(s). Simplify the answer.

1. -3 + 5 = 2
2. 6 – 9 = -3
3. -7 • 8 = -47
4. 4 + (-3) = 1
5. 9 + (-4) = 5
6. 1 + (-6) = 7
7. 3 • (-5) = -15
8. -5 + 7 = 2
9. -2 + (-5) = -7
10. -3 • (-4) = -12
11. - 6 – 7 = -13
12. -6 ÷ (-3) = 2
13. -4 + (-1) = -3
14. 8 ÷ (-2) = -4
15. 3 – 5 = -2
16. -5 + 2 = -3
17. -4 ÷ (-8) = 2
18. -2 + 8 = 6
19. -2 • 8 = -16
20. -6 + 3 = -3
21. -2 + 6 - 3 = 1
22. -7 – 5 – 3 = -15
23. 5 – 2 – 7 + 3 = -1
24. -3 • 2 • (-3) = 18
25. -2 + 3 + 4 - 5 = 0
26. -4 + (-3) + (-2) – 1 = -4
27. 6 – 7 – 7 – 4 = -12
28. 4 • (-3) (-2) = -14 24
29. -2 (-3) (-2) (-2) = 24
30. -3 + (+3) + (+3) = 3
31. -2 • 5 • (-3) (-2) = -60
32. 6 + (-1) + (-5) + (-4) = 6
33. -2 • (-3) = 6
34. -7 + (-4) – (-9) = 2
35. -24 ÷ (-4) ÷ (-2) = -3
36. -9 – 8 – 7 – 6 = -38
37. -3 • 4 (-2) = 24
38. 2 + (-3) + 2 + (-5) = -4
39. 4 + (-3) + 5 + (-7) = 5
40. 3 • (-2) • 5 • (-3) = 90

Perform the indicated operation(s). Simplify the answer.

1. -13 + 5 = -8
2. 4 – 9 = -5
3. -7 – 8 = -15
4. -4 + (-3) = -7
5. 9 + (-4) = 13
6. 16 + (-1) = 17
7. 3 + (-5) = -2
8. -5 – 7 = -12
9. -5 + (-3) = -8
10. -3 + (-4) = 1
11. -8 – (-7) = -1
12. -6 + (-3) = -9
13. -4 + (-1) = -3
14. 8 + (-2) = 10
15. -3 + 5 – (-4) = 6
    2 + 4
16. -5 + 2 – 5 = -8
    -3 -5
17. -4 + (-8) – 3 = -15
    -12 -3
18. -2 + 8 + (-4) = 2
    6 -4

2 –'s make (+)
1 –'s makes (–)

Perform the indicated operation(s). Simplify the answer.

1. -3 • 5 = -15
2. 6 (-9) = -45
3. -7 • 8 = -42
4. -4 • (-3) = 12
5. 16 ÷ (-4) = -4
6. 21 ÷ (-6) = -3.5
7. 3 • (-5) = -15
8. -5 ÷ 15 = -3
9. -2 • (-5) = 10
10. -3 • (-4) = 12
11. $\frac{-24}{-6}$ = 4
12. -6 / (-3) = 2
13. $-\left(\frac{32}{-4}\right)$ = 8
14. 8 / (-2) = -4
15. $\frac{45}{-3}$ = -15
16. $-\left(\frac{-12}{-3}\right)$ = -4
17. -4 / (-8) = .5
18. -12 ÷ 8 = 1.5

Notes

10/11

You can collect like terms

$6 - (-1) + (-5) - (-4)$

$6 + 1 - 5 + 4$

$11 - 5$

6

10/11

1. $-3 + -4 = -7^{\circ}$ - take away 3 hot cubes and add 4 cold cubes

2. Add 4 hot cubes and take away 8 cubes
$+4 - (-8) = 12^{\circ}$

3. $-(6 \times 3) = -18^{\circ}$ - Take away 6 groups of 3 hot cubes

4. $3 \times -5 = -15^{\circ}$ - Add 3 groups of 5 cold cubes

5. $-3 + -4 - (-8) = -1^{\circ}$ - Take away 3 hot cubes and add 4 cold cubes Then take away 8 cold cubes

Absolute value - the distance from 0

Symbol = $|2|$

Example $|-3| = |3| = 3$ | $|-4| = 4$ | $-|4| = -4$

over →

$$\frac{\left|\,|4-8|\,\right| - |4-6|}{4-8}$$

$$\frac{\left|\,|(4)|\,\right| - |-1|}{-4} \qquad \frac{4-1}{-4} = \frac{3}{-4} = -\frac{3}{4}$$

$(2.1)^2$

21^2

4.41

Perfect^2 to 25

10/11

1	1
2	4
3	9
4	16
5	25
6	36
7	42
8	64
9	81
10	100
11	132
12	144
13	169
14	196 Big Jump
15	255 small jump
16	256
17	289
18	324
19	361
20	400
21	441
22	484
23	529
24	576
25	625

Patterns

Quiz

10/6

Rules, Rules, Rules (#15)

10/11

1. Rules: $y = x + 11$ $\quad y = |x+1|$
   ✓ $y = 3x + 1$ $\quad y = 4x - 4$
   $y = (x+3)\,2$ $\quad y = (x+27) \div 2$
   $y = 20x - 84$ $\quad y = 6x \div 2 + 1$
   $y = 0x + 16$
   $y = 2x + 6$

2. ~~$y = 2x + 1$~~
   $y = 3x - 1$ $\quad y = 4x - (x+1)$
   $y = x^2 + 1$ $\quad y = 4x - x - 1$
   $y = (x+1)\,2 - 4$ $\quad 3x$
   $y = x^2 + 1$

Another In-Outer (#16)

10/11

1. To get the out the 1st letter is size, 2nd is color, 3rd is shape
   ◯ = L W S
   △ = L W t

2. $y = -3x$ $\quad 13 = -39$ $\quad -7 = 21$ $\quad 10 = -30$ $\quad -11\frac{2}{3}$ $\quad$ ~~7~~ $= 35$

3. $y = 3x + 2$ $\quad -5 = -13$ $\quad 0 = 2$ $\quad -7 = -19$

4. ~~? last letter + 8 down alpa ?~~ The out = the next letter of the alph of the 3rd letter
   Robert = ~~B~~ C

5. ~~Add this~~
   ~~Hair = 5, Eyes = 2~~ $\quad y = (\text{hairs})^2 + (\text{eyes})$
   Last one = ~~21~~ 27

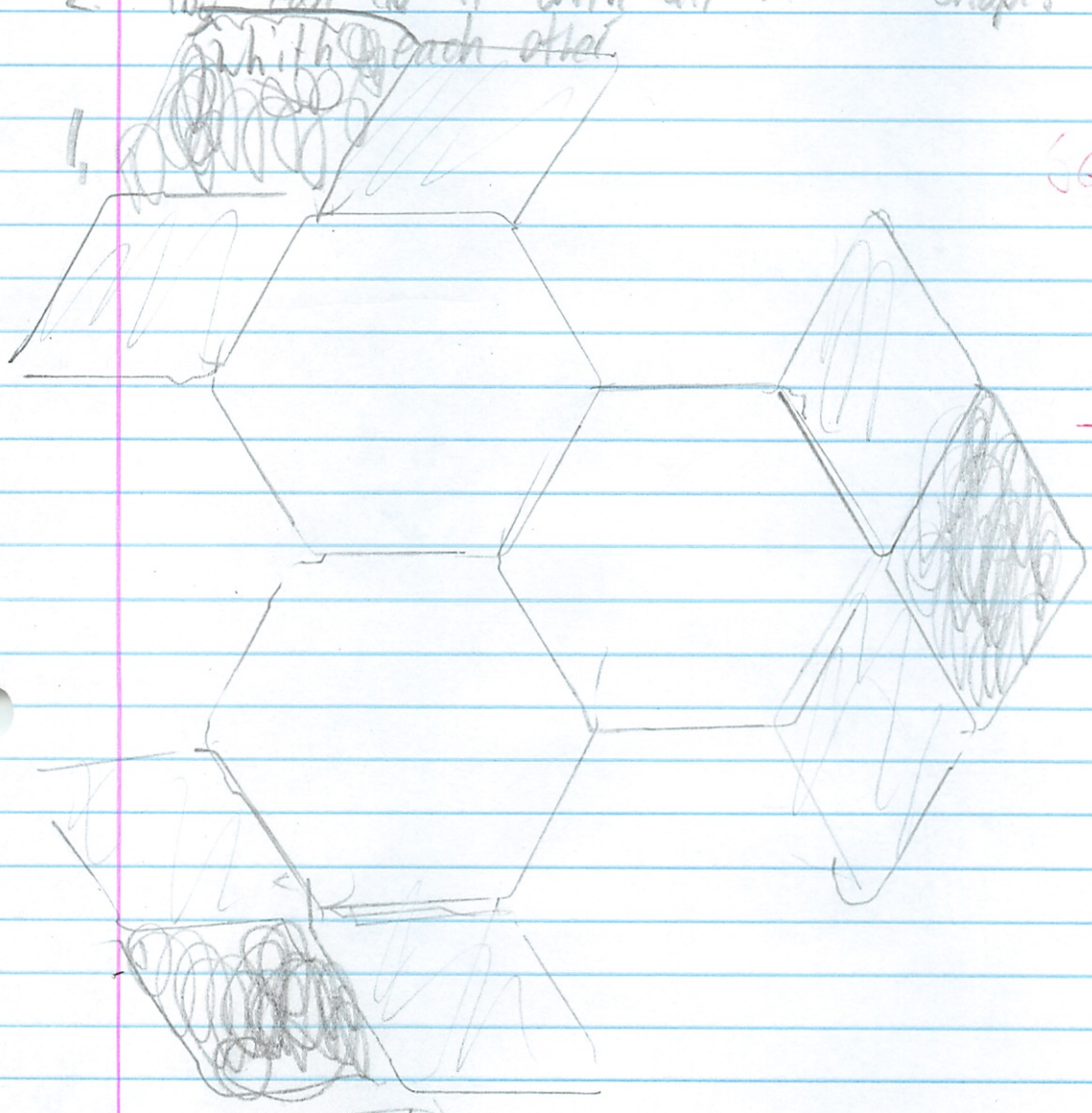
6. $y = -3x + 1$ $\quad 3 = -8$ $\quad -2 = 7$ $\quad -3 = 10$

Pattern Block

p43

2. You can do it with all of the shapes together ~~with each other~~

1.



See Angle Notes

p46

Triangle

$$\begin{array}{r} 360 \\ \div 6 \\ \hline 60^\circ \end{array}$$

◊ = 3 of them / 360° = 120° each for big side

2 smalls are 120°

1 small is 60°

Note

Notes

10/13

+7 = Positive seven

-7 = negitive seven

<u>Sign</u> - indiates whether the number is positive or negitive

<u>Zero</u> - neither positive nor negitive

+3 and -3 are opposets

<u>Interger</u> - a number that is either zero, a natural number or the oppset of a natural numer

<u>Greater then</u>: >

<u>Less then</u>: <

<u>Absolute value</u> - the distance a number is from 0

$|5| = 5 \quad |-7| = 7$

<u>Polygon</u>: A closed two-dimensional shape formed by 3 or more line segments

<u>Triangle</u>: A polygon w/ 3 sides.

<u>Quadrilateral</u> - A 4 sided figure

<u>Square</u>: A 4 sided polygon w/ all sides of equal lengh 4 right angles

<u>Rhombus</u>: A 4 sided polygon whoes sides are all sides same lengh

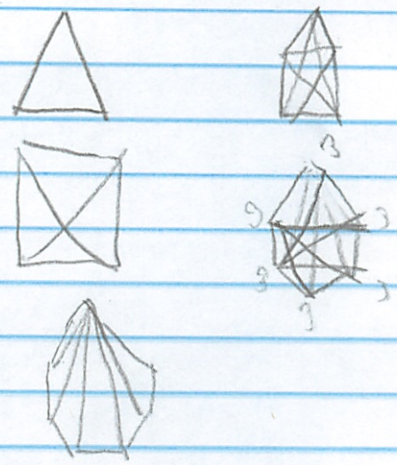
<u>Trapezoid</u> - 4 sided polygon w/ 1 pair of parall sides

Diagonally Speaking #17

Michael Plasmeier

10/13

1.



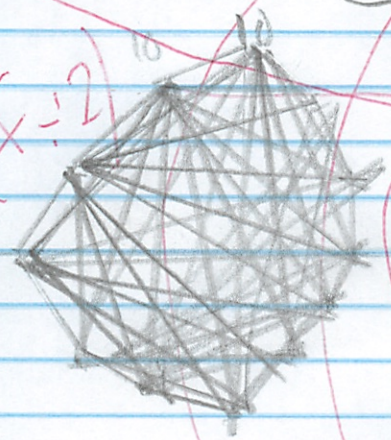
In: # of sides	Out: # of diagonals	
3	0	
4	2	+2
5	5	+3
6	9	+4
7	14	
8	20	
9	27	
10	35	

2. Add up the number of vertices and subtract 2 and divide by half. Then multiply that # by the number of vertices and cut that in half.

$12-2 = 10 \times 17 = 170 / 60$

$y = (x-3) \cdot (x-2)$

x = # of sides



$\frac{x^2-3x}{2}$

3. This pattern holds because each vertex is connected to diagnol points, except for the 2 on the side of the shape. Thus there are a certain number of points (vertices) they all have same # of diagonals. Because a diagonal has 2 vertices divide that # in half, that is your answer

Michael Plasmeier

A Protracted Engagement

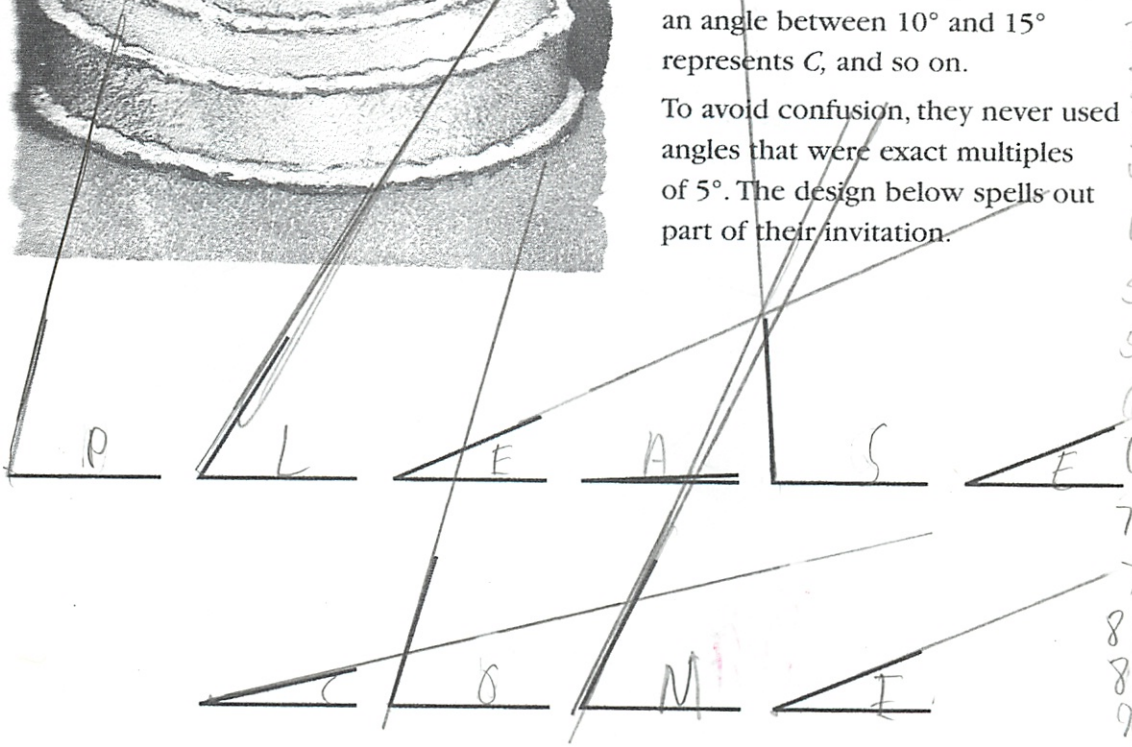
Deon and Marsha thought of an interesting way to announce their long-awaited wedding.

They decided to send the invitations out in code. In the code they decided on, each letter is represented by an angle of a certain size.

An angle between 0° and 5° represents the letter *A*, an angle between 5° and 10° represents *B*, an angle between 10° and 15° represents *C*, and so on.

To avoid confusion, they never used angles that were exact multiples of 5°. The design below spells out part of their invitation.

>	A
5	A
10	B
15	C
20	D
25	E
30	F
35	G
40	H
45	I
50	J
55	K
60	L
65	M
70	N
75	O
80	P
85	Q
90	R
95	S
100	T



1. What does this message say? Please Come
2. Make up a message of your own that is between 10 and 20 letters long. You and other students can exchange and decipher each other's messages.

I AG

1

Triangle Notes

10/14

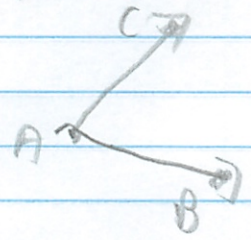
One complete turn has 360°

Degree: name for a turn for $\frac{1}{360}$ of a complete turn

Right Angle: an angle with a measure of 90°

Acute Angle: an angle whose measure is between 0° and 90°

Obtuse Angles: angle whoes measure is between 90° and 180°



Vertex: Point A is the vertex of this angle

Sides of the angle are ray AB and ray AC

Name the angle using all 3 points with the vertex in the middle Our angle is angle BAC or angle CAB

Ray The part of a line from a single point, called the vertex through another point on the line or continuing infinetly in that direction.

Degree Discovery

+ Polygon Angles #18

	1	2	3	Average
Triangle	179	181	180	180°
Quad.	345	361	358°	354
5-Gon	543	442	449	
Hexagon	497	624	554	558

174

356

+124

478 540 +80 720

# of side polygons	out
3	180
4	354
5	478
6	558
7	900
n	(n-2) x 180

sum of angles

Measure of each angle of a regular n-gon

sides angles are same

3	60
4	90
5	108
6	120°
7	128 4/7
n	(n-2)180 / n

Triangle Conclusion: The Triangles add up to 180° and when you put 3 angles together the make a line

Square should equal 360° It equals 354°

5-Gon - Have very different results. 2 are similar. No pattern

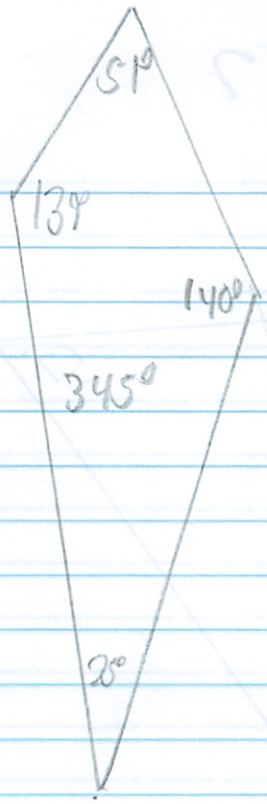
Hexagon: Answer far apart, though average is close to shape 3

#18

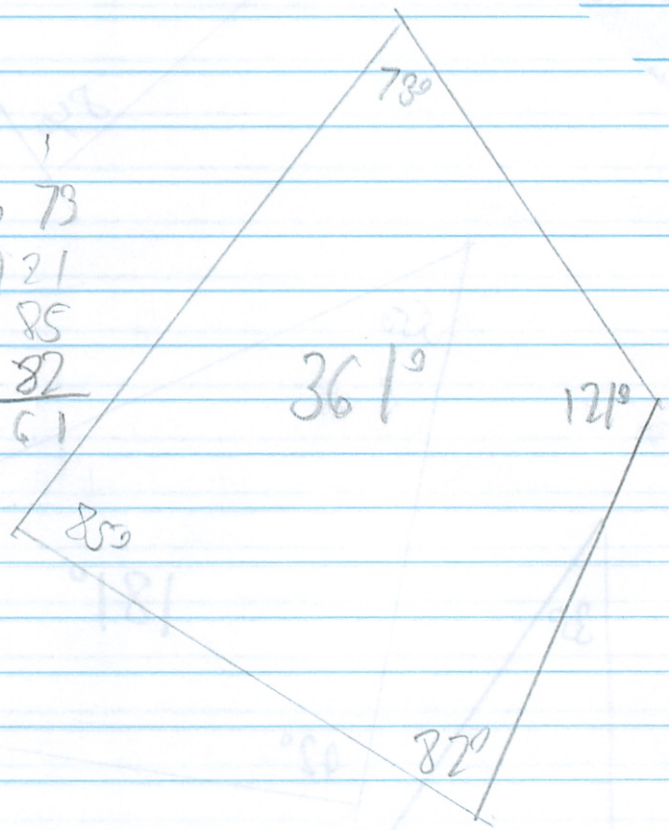
Total - There is no pattern I found, although the average increase does go down

I can't make any generalization, although the more sides, a the bigger the sum of the angles

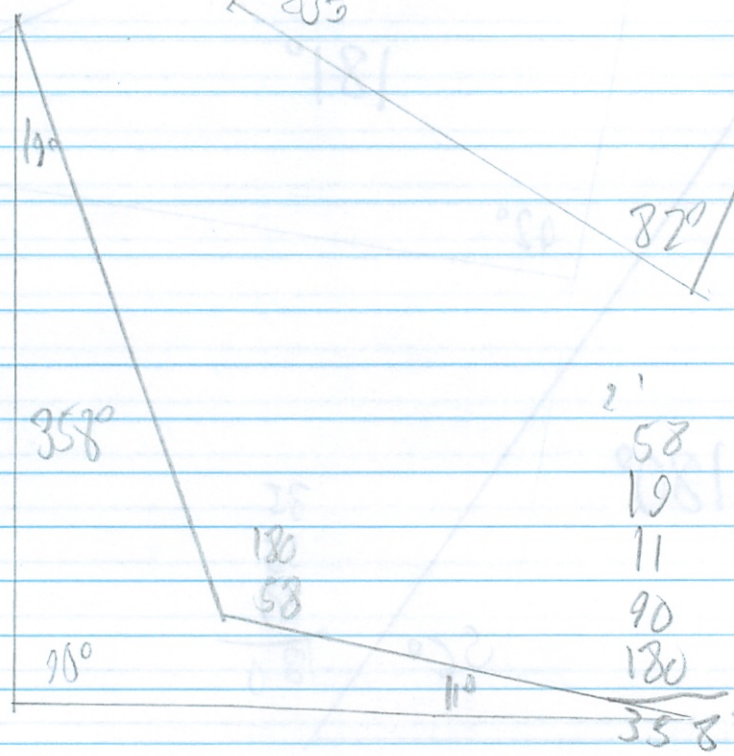
Multiply # of sides (subtract 2 1st) by 180



25
140
61
139
345

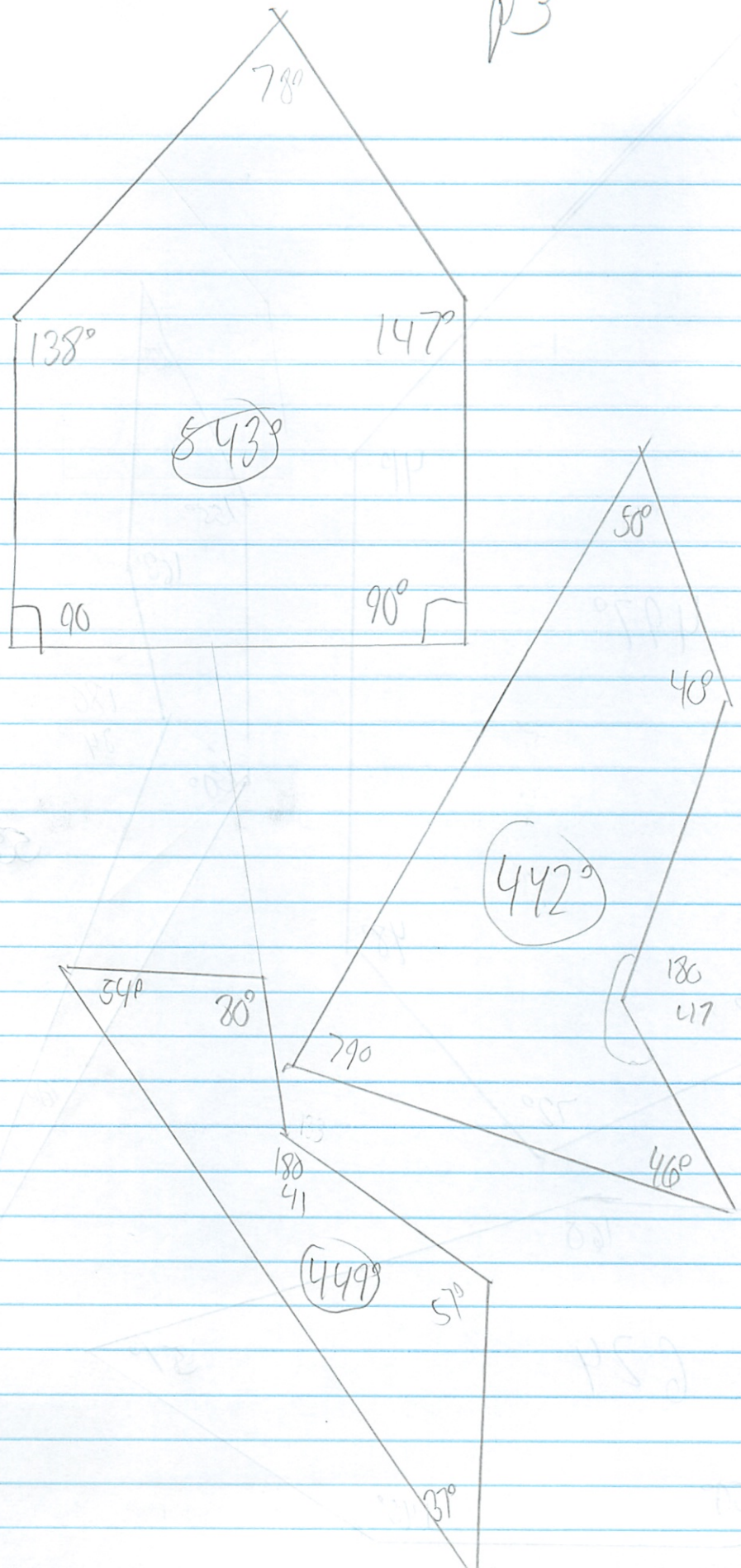


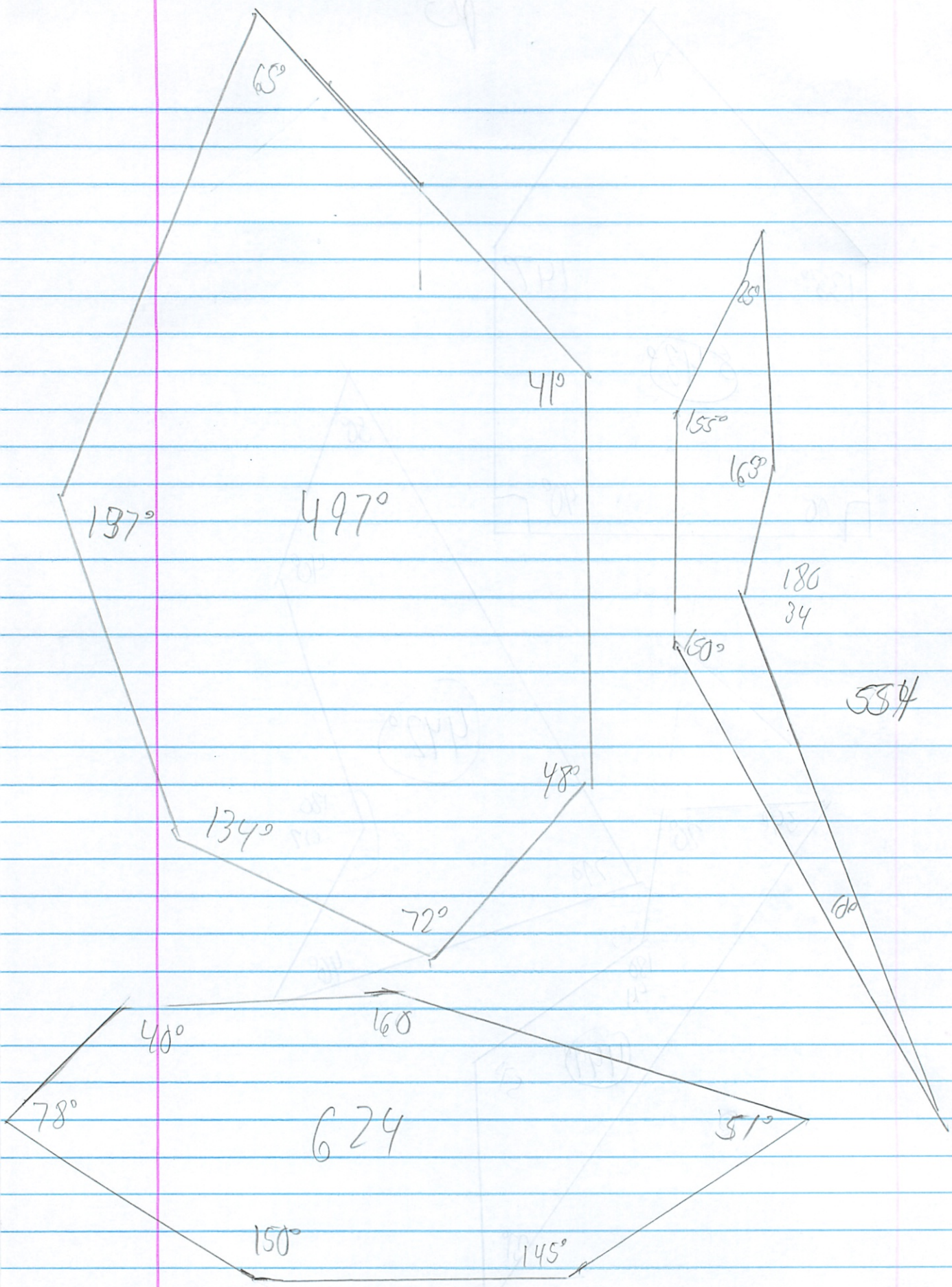
73
121
85
82
361



58
19
11
90
180
358

P3




65°
41°
137°
497°
48°
134°
72°
25°
155°
165°
186
34
150°
584
160
40°
78°
624
51°
150°
145°

Angles Notes

10/15

The angle of a polygon is an angle formed when 2 sides of the polygon meets at a vertex

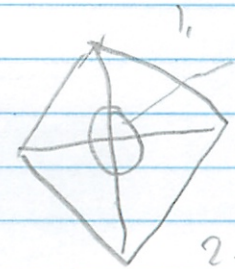
Recursive function is a rule that tells how to get a value out from the previous out value.

All Regular Polygon

Color of (Figure)	Figure
Green (Equiangular triangle)	60°
Yellow (Hexagon)	120°
Orange (Square)	90°
Brown (Small Rhombus)	30° and 150°
Blue (Rhombus)	60° and 120°
Red (Trapizoid)	60° and 120°

Regular Polygon - a polygon that has all of its sides equal and all of its angles are =

Proof gone bad 10/15



1. He is adding these angles, which are not ~~x~~ the side

2. Just take those out.

Real #

Quiz

10/13

Patterns Pop

Quiz 10/13

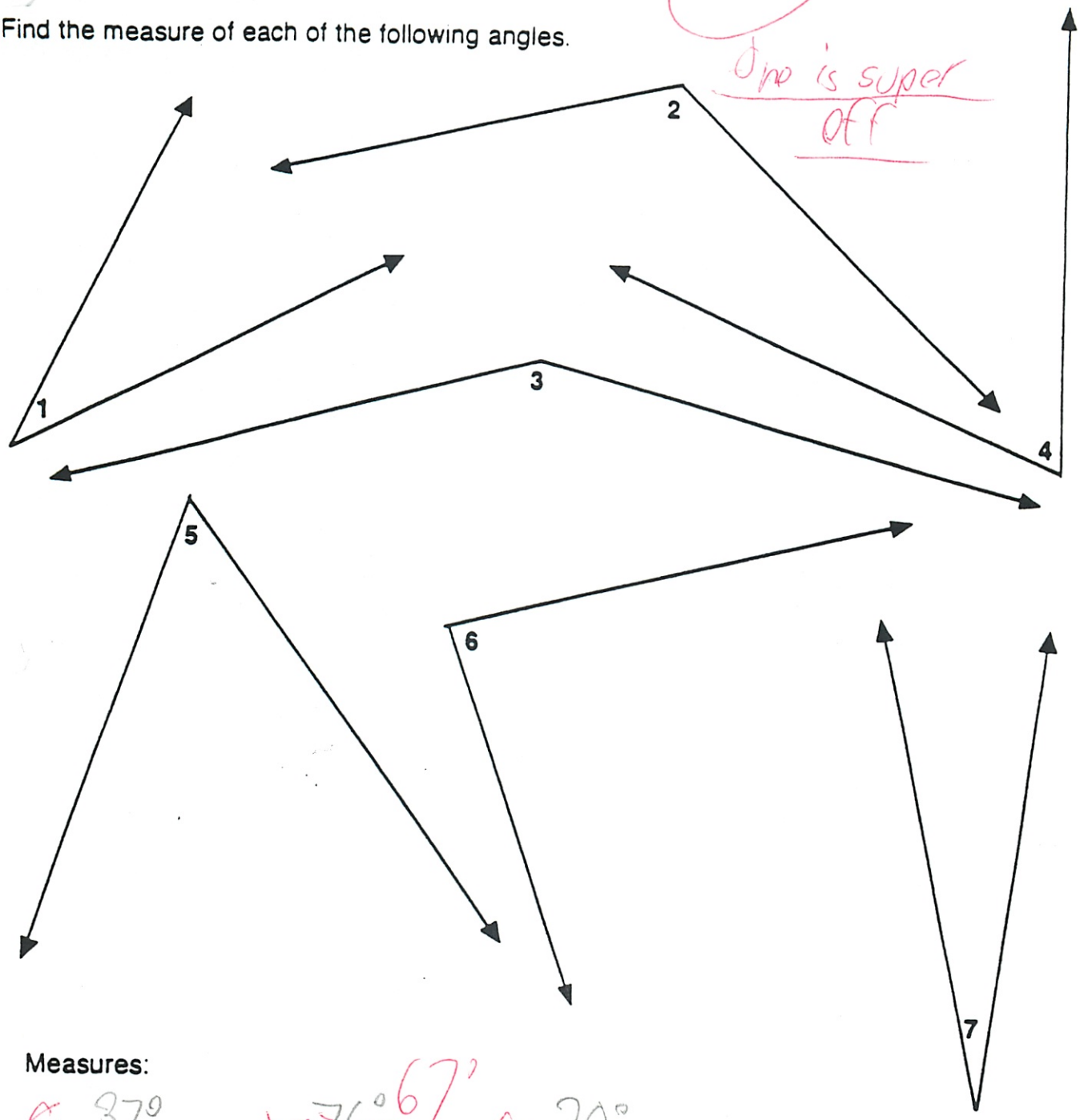
Name: Michael Plasmeier

-2

PATTERNS DAY 17

Find the measure of each of the following angles.

One is super off



Measures:

∠1 37°

∠2 122.5° 123

∠3 151° 150

∠4 76° 67°

∠5 56°

∠6 84.5° 84°

∠7 20°

Squares and Scoops #20

10/16

1.

Hight (n)	# Squares (x)
1	1
2	3
3	6
4	10
5	15
6	21
7	28
8	36
9	45
10	55
40	820

or

$(x/2)(x-1)+x$

Distributing $\frac{x^2}{2} - \frac{x}{2} + 1$

Recursive Formla $\frac{x^2}{2} + \frac{x}{2}$

$\frac{x+1}{2} \times x$

$x + n = (\text{new})x$ $\frac{x^2+x}{2}$

Or add all the n's above including tot

$3 = 3+2+1 = 6$

$\sum_{x=1}^{n} x$ $\frac{x+1}{2} \times x$

2.

# Scoops (n)	Arrangements (x)
1	1
2	2
3	6
4	24
5	120
6	720
7	5,040
10	3,628,800

forgot something

or

a. 3

1	1	2	2	3	3
2	3	1	1	2	2
3	2	3	2	1	1

6

1st	2nd	3rd
1	2	3
	3	2
2	1	3
	3	1
3	1	2
	2	1

6 or ~~1+2+3~~ = 6

b: Formula = $\boxed{x = n!}$

It's like probility from last year

c: 100!

Garden Border #21 #22

in Class

10/18

~~x = number of rows~~

n = length of 1 side

x = # of squares

36

1. $4n - 4 = x$

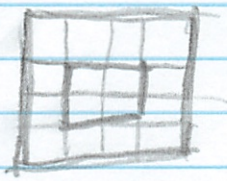
-4

4 rows minus corner counted 2x

2. $2n + 2(n-2) = x$

3. $4(n-1) = x$

4. $n^2 - (n-2)^2$



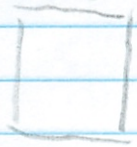
= total area

− minus inside

#22

1. a. $2s + 2(s-2)$ b. $s + 2(s-1) + (s-2)$ c. $4(s-2) + 4$

d. $s^2 - (s-2)^2$ $4(s-1)$



2. $s + s + s + s - 4$

10
10
10
10
10

5 sids

40 — don't count corners 2x

Michael Plasmeier 10/20

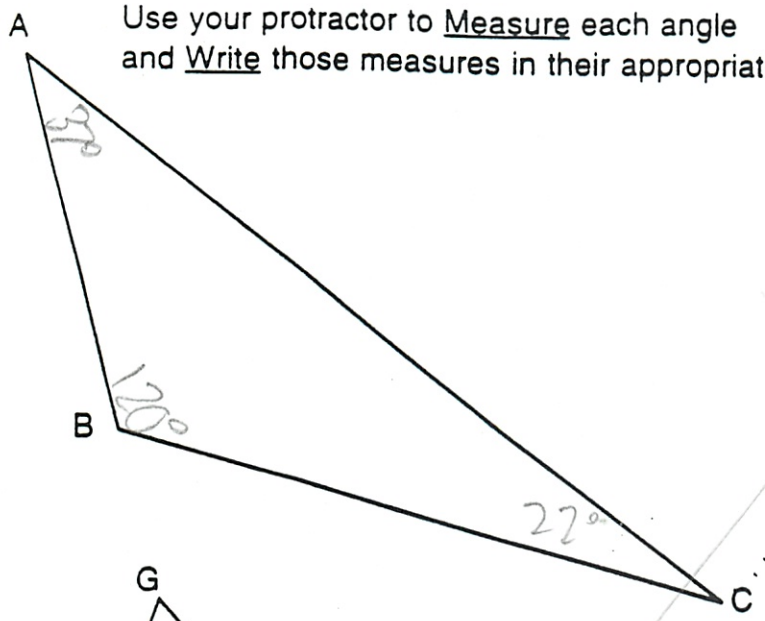
Degree Discovery

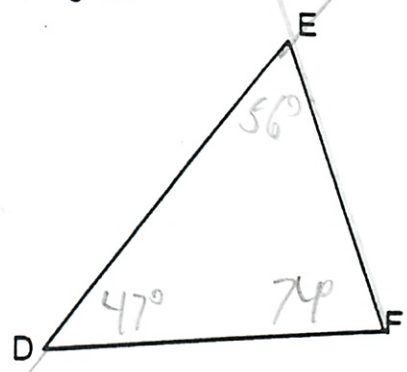
PATTERNS DAY 18

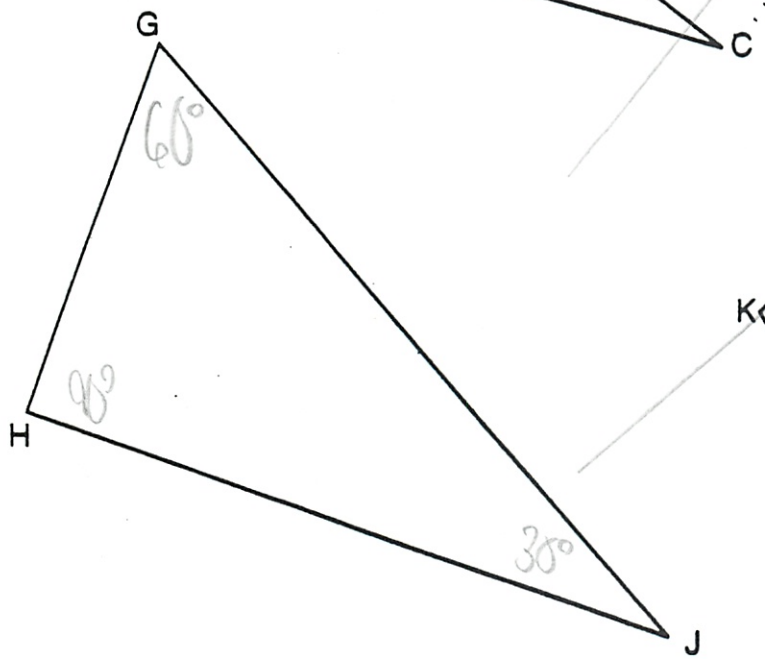
Use your protractor to Measure each angle and Write those measures in their appropriate angles.

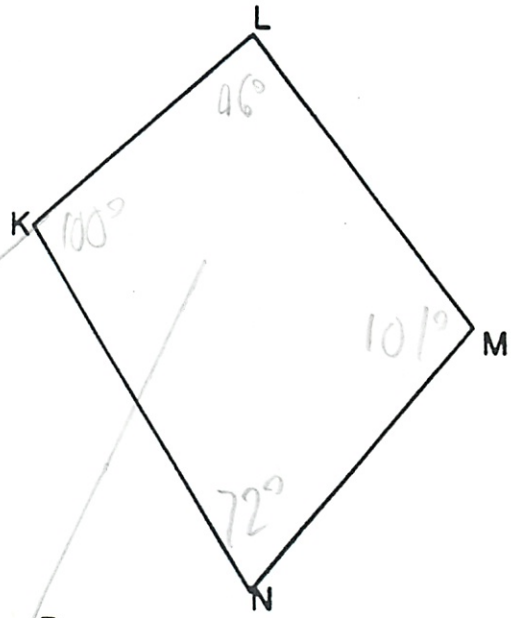
$180(n-2)$

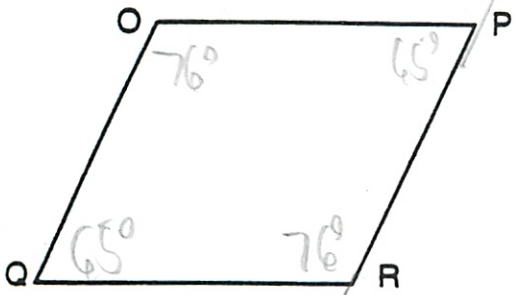
n: number of sides











Worksheet

Review

Reg Polygon

Angle Sum

Warm Up

does w/ 2

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

$-8 + 16 + 2 + 4 + 1$

$-9 + 22$

13

$-12 + 19$

7

$-4\frac{1}{2} - -3\frac{1}{3} - 6\frac{1}{8}$

$-4\frac{12}{24} + 3\frac{8}{24} - 6\frac{3}{24}$

$-10\frac{15}{24} + 3\frac{8}{24}$

$-7\frac{7}{24}$

$10\frac{15}{24}$

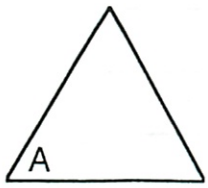
$3\frac{8}{24}$

$7\frac{7}{24}$

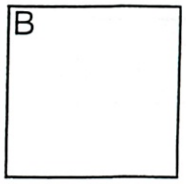
180(5/2)/5

In each figure, **without measuring the angles**, *calculate* the degree measure of each labeled angle. Assume that each figure is regular; that is, that all sides of the figure are the same length and all the angles of the figure have the same measure. In some figures segments are drawn from the **center** to each **vertex**.

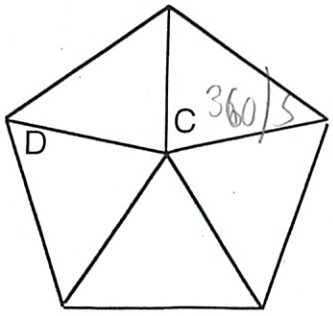
1. Triangle



2. Quadrilateral

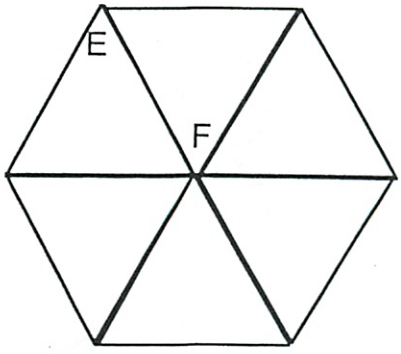


3. Pentagon



360/5

4. Hexagon



ANSWERS

m∠A = 60°

m∠B = 90°

m∠C = 72°

m∠D = 108°

m∠E = 120°

m∠F = 60°

m∠G = 135°

m∠H = 45°

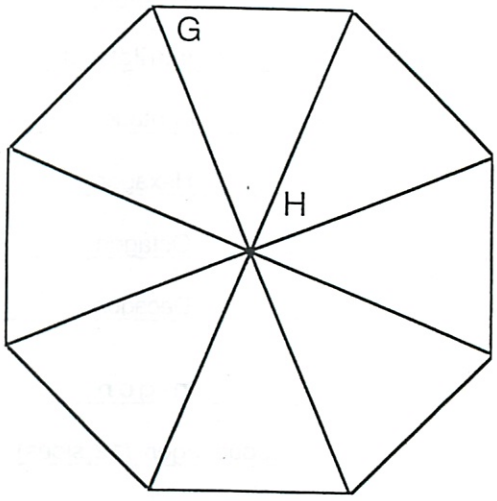
m∠J = 180°

m∠K = 40°

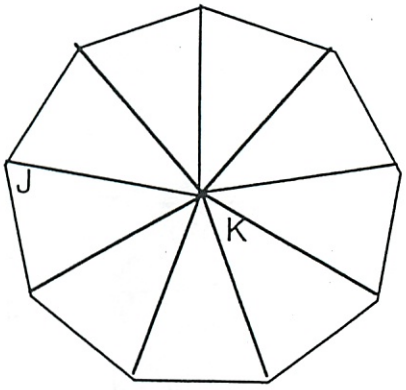
m∠L = 36°

m∠M = 144°

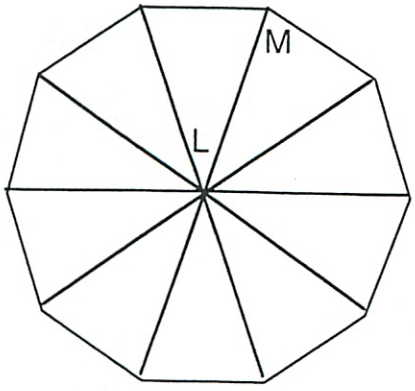
5. Octagon



6. Nonagon



7. Decagon



x	y
0	4
2	5
-2	3
1	$4\frac{1}{2}$
3	$5\frac{1}{2}$

Put in order

Fill in so x is contins

+2, +1, +5, +2.5

So its $\frac{2}{1}$

$y = \frac{x}{2} + 4$

so its $\frac{1}{2}$ x increase + 4

$180(x-2)$

Use the information you found about each figure to fill in the following table.

Name of polygon	Measure of one interior angle	Sum of measures of all interior angles
Triangle	60°	180°
Quadrilateral	90°	360°
Pentagon	108	540
Hexagon	120	720
Octagon	135	1080
Decagon	144	1440
n-gon	$\frac{180(n-2)}{n}$	$180(n-2)$
dodecagon (12 sides)	150	1800
20-gon	162	3240

+2, +8, +10, +4, +6, +2

$\sum_{n=1}^{5} n^2+n$

$1^2+1+2^2+2+3^2+3 \ldots$

$1+1 \quad 4+2 \quad 9+3$

$= 2 + 6 + 12$

$8 + 12 + 50$

$20 + 50$

90

$2+6+12+20+30$

Warm up 10/22

$(-3)^3 - -9^2$

$-27 + 81$

54

$-4\frac{2}{3} - -5\frac{1}{2} + 2\frac{3}{4}$

Have to add or add

$-4\frac{2}{3} + 8\frac{1}{4}$

$3\frac{1}{3}$ $3\frac{7}{12}$

-0.7^2

-4.9

$\frac{2}{12}$

-4.9

$81 - 27 = 54$

$-3\frac{1}{2} - 4\frac{1}{3} - 2\frac{3}{8}$

$-7\frac{1}{6} - 2\frac{3}{8}$

$-10\frac{5}{24}$

+4 so $4x + \cancel{10}$ not this go back

$32+44+10+14+18+22+26+30+34$

$24+30+56+34$

$54+90 = \cancel{144}$ 154

$\sum_{x=0}^{3} 2x^2 - x + 1$

Is this $2(x^2)$ Yes

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

$2(0) + 1 \quad 2(1) + 2(4) - 1 + 2(8) - 2$

was correct

$0 + 1 + 2 + 8 - 1 + 18 - 2$

26

Could do this

$\sum_{x=0}^{6} 4x+16$

$\sum_{x=2}^{8} 9x+2$

$\sum_{x=7}^{x=} x+3$

I have trouble doing these (So?)

Angle

Measure

Quiz 2

10/18

Pow

#3

Who's Dog?

(P66)

10/22

	Dog					Hubby				
	G	J	I	F	H	G	J	I	F	H
Abigale	O	x	x	x	x	x	x	x	O	x
Bertha	x	x	x	x	O	x	x	O	x	x
Candy	x	O	x	x	x	x	x	x	x	O
Dodi	x	x	x	O	x	x	x	x	x	x
Eudora	x	x	O	x	x	O	x	x	x	x

	Dog	Hubby
Abigale =	George	Frank
Berth =	Horce	
Candy =	Jerry	Horce
Dodi =	Frank	
Eudora =	Ike	

More than 1 solution because George's Dog is not correctly defined. Those husbands can't be found

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Futial Life

(P67)

10/25

$\frac{1}{4}$ boy

$\frac{1}{5}$ teen

$\frac{1}{3}$ man

13 old

$\frac{7}{12}$ $\frac{35}{60}$

$\frac{1}{5}$ $\frac{12}{60}$

$\frac{42}{60} + 13 = \frac{60}{60} = 1$

- 60 years life living

Its All Gone

p69

0
10 +10
5 ÷2
15 +10
7.5 ÷2
17.5 +10
8.25 ÷2

Starts w/ He starts with 8.25 as he get double - 17.50 and spends 10. 7.50
2nd shop doubles that to 15 and spends 10, to get 5 which is doubled to 10, which he spends and then he is broke

---

p71
Number Magician

32 6
+8 21
40 63
×3 3)54
120 18
+9 -8
3)129 10
43
-15
28

1.

50
65 4 62
195 -8
-9

2. The differen is always 4 more then the number called the answer. The Magican just subtracts 4

Here is it simplifed

$x + 15 \times 3 - 9 / 3 - 8$

Dividedby 3

$x + 15 \times 1 - 3 / 1 - 8$

Simp

$x + 15 - 3 - 8$

$x + 15 - 11$

$x + 4$

CMA Warmup A

Michael Plasmeier 10/26

1. $x+1+2=12$ $\quad$ $x+1+4=17$

So $x+1=10$ $\quad$ So $x+1=13$

$x=9$ $\quad$ $x=12$

(A)

2. $\frac{3}{8}$ participate $\quad$ $\frac{5}{8}=62.5\%$ don't $\quad$ $125 \times 5 = 625$ (H)

3. $2^n=128$

$5: 2\times2\times2\times2\times2 = 32$

$6: 32\times2 = 64$

$7: 64\times2 = 128$

(C)

4. $h-2=c$ (J)

5. $\frac{2}{6}=\frac{1}{3}$ (C)

6. $y=2x+3$

$x=1$: $5=2(1)+3$

$x=2$: $9=2(2)+3$

$13=2(5)+3$

(J)

7. 12 23 34 45

13 24 35

14 25

15

= 10 games

8. 8 to 12 : 10 to 12 because they show something in relation to the same thing

9. $75 - 30 = 45$, $45 - 15 = 30$

$\frac{30}{75} = \frac{6}{15} = \frac{2}{5} = \frac{40}{100} = 40\%$

10. $8\overline{)12{,}500.0}$ = 1562.5 a month

$7\overline{)1562.50000}$ = 2232.1428

Approx 2232 balls a day

11. 16 (4^2)

B. $(n-1)^2$ only above 3rd square

C $(20-1)^2$

19^2

$$\begin{array}{r} 19 \\ \times 19 \\ \hline 171 \\ 171 \\ \hline 361 \end{array}$$

20th square because I found that $(n-1)^2$ works for squares above 3. When I solved this I found he would have 1881.

How to do double previous (recursive) and get to formula? Need Help!

12 $500 - 214 = 286$

$27\overline{)286}$ = 16

$$\begin{array}{r} 11 \\ \times 27 \\ \hline 77 \\ 220 \\ \hline 297 \\ -264 \\ \hline 33 \end{array}$$

11 more weeks I found this by first subtracting what she had. I then added 7+20 to find her weekly income. I then divide what she needed by the weekly income. I rounded up because she can have more but not less. That was # of weeks remaining

CMA Warm-up B
w/ Calculator

10/28

1. 17, 15, 17 — C

2. J

3. $\frac{1}{4} = \frac{25}{20}$ — 45% — D

4. 6

5. 15, 10, 10, 15 — 50 — A

6. A

7. 2.50

8. .16 | .303 | .35 | .4 | .67

8b. $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{2}{3}$ $\frac{7}{8}$

We have not learned triangulation

9. A: (2,5) (6,5)
B: (2,0) (6,0)
C: (2,-3) (2,-3)

10. 8 ?

11. $66\% < x < \frac{4}{5}$

$\frac{4}{5} = .8$

$\frac{17}{20}$ 68% $\frac{5}{7}$ $\frac{9}{25}$ 80%

A bit more than 66% — .714 is between .66 & .8

Over →

16 A She means that when you multiply 2 multibles of 4 ex. 4 and 16 the answer is still a multiple of 4

$$4 \cdot 16 = \frac{64}{4}$$

16 = so multiple

B. A was true because you take a certain # of groups of 4 which still make it a multiple

Quiz

10/25

Unit Test

10/27

Portfolio

Cover Letter

(Rough Draft)