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## Warmup 8/(76 - 76 + 15 - 0)

1. Label a new page "Week 2 Warmups". Remember, it will be easy to find if it's on the last page of your binder. Label today's warmup with the date or "Monday".
2. What are the three main expectations in this class? (Try to do this without asking other people?)

## Warmup reminders

- Try to put all of the warmups for the week on the same piece of paper.
- You will gain or lose points on LiveSchool depending on if you turn in warmups or if you are missing a few days
- If you are ever absent, just say "Thursday - absent" or something so I know not to count off
- **ORGANIZATION IS KEY!!!** If you struggle with it, try to come up with a "system" that works for you

## 1<sup>st</sup> Period

- Handbook Page
- Student Council

## 5<sup>th</sup> Period

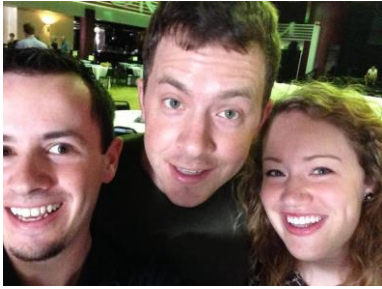
- If your LiveSchool codes didn't work, it could be because you already used that same code last year.
- Try using your login information from last year. If that doesn't work (or you don't remember), please see me, and I can help you get set up.

## Project Grades

- This is your first grade that "counts"
- What is an easy way to figure out your percentage?

## Lischwe Age Problem, Part 2

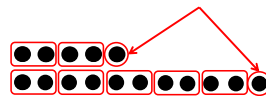
- Nate's age + Anne's age = 61
- 23 years ago, Nate was twice as old as Anne.



Some more consecutive sums patterns...

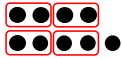
Odd number + odd number...

$$5 + 11$$



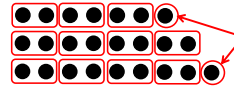
## Even number + odd number...

$$4 + 5$$



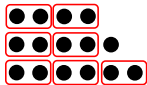
## Odd + Even + Odd...

$$7 + 8 + 9...$$



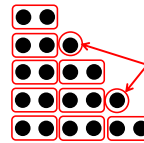
## Even + Odd + Even...

$$4 + 5 + 6...$$



## What about 3 evens + 2 odds?

$$2 + 3 + 4 + 5 + 6$$



## Pattern for adding 2 numbers, 3 numbers, 4 numbers...

$1 + 2 = 3$	$1 + 2 + 3 = 6$	$1 + 2 + 3 + 4 = 10$
$2 + 3 = 5$	$2 + 3 + 4 = 9$	$2 + 3 + 4 + 5 = 14$
$3 + 4 = 7$	$3 + 4 + 5 = 12$	$3 + 4 + 5 + 6 = 18$
$4 + 5 = 9$	$4 + 5 + 6 = 15$	$4 + 5 + 6 + 7 = 22$
$5 + 6 = 11$	$5 + 6 + 7 = 18$	$5 + 6 + 7 + 8 = 26$
$6 + 7 = 13$	$6 + 7 + 8 = 21$	$6 + 7 + 8 + 9 = 30$

## 6 numbers...

$$10 + 11 + 12 + 13 + 14 + 15 = 75$$

$$\begin{array}{ccccccc} +1\downarrow & +1\downarrow & +1\downarrow & +1\downarrow & +1\downarrow & +1\downarrow \\ 11 + 12 + 13 + 14 + 15 + 16 = ? \end{array}$$

$$10 + 11 + 12 + 13 + 14 + 15 = 75$$

$$11 + 12 + 13 + 14 + 15 + 16 = ?$$

A **SHORTCUT** for adding 3 consecutive numbers...

$$\cancel{21} + 22 + \cancel{23}$$

22                  22

$$\cancel{7} + 8 + \cancel{9}$$

8                  8

$$199 + 200 + 201$$

Just take the middle number times 3!

A **SHORTCUT** for adding 5 consecutive numbers...

$$1 + 2 + 3 + 4 + 5$$

$$\cancel{8} + \cancel{9} + 10 + \cancel{11} + \cancel{12}$$

10   10                  10   10

Just take the middle number times 5!

Would it work for 6 numbers?

$$3 + 4 + 5 + 6 + 7 + 8$$

$$15 + 16 + 17 + 18 + 19 + 20$$

Last pattern: impossible numbers

1: Impossible	21: 10 + 11, 6 + 7 + 8, 1 + 2 + 3 + 4 + 5 + 6
2: Impossible	22: 4 + 5 + 6 + 7
3: 1 + 2	23: 11 + 12
4: Impossible	24: 7 + 8 + 9
5: 2 + 3	25: 12 + 13, 3 + 4 + 5 + 6 + 7
6: 1 + 2 + 3	26: 5 + 6 + 7 + 8
7: 3 + 4	27: 13 + 14, 8 + 9 + 10, 2 + 3 + 4 + 5 + 6 + 7
8: Impossible	28: 1 + 2 + 3 + 4 + 5 + 6 + 7
9: 4 + 5, 2 + 3 + 4	29: 14 + 15
10: 1 + 2 + 3 + 4	30: 9 + 10 + 11, 6 + 7 + 8 + 9, 4 + 5 + 6 + 7 + 8
11: 5 + 6	31: 15 + 16
12: 3 + 4 + 5	32: Impossible
13: 6 + 7	33: 16 + 17, 10 + 11 + 12, 3 + 4 + 5 + 6 + 7 + 8
14: 2 + 3 + 4 + 5	34: 7 + 8 + 9 + 10
15: 7 + 8, 4 + 5 + 6, 1 + 2 + 3 + 4 + 5	35: 17 + 18, 5 + 6 + 7 + 8 + 9, 2 + 3 + 4 + 5 + 6 + 7 + 8
16: Impossible	36: 11 + 12 + 13, 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8
17: 8 + 9	37: 18 + 19
18: 5 + 6 + 7, 3 + 4 + 5 + 6	38: 8 + 9 + 10 + 11
19: 9 + 10	39: 19 + 20, 12 + 13 + 14, 4 + 5 + 6 + 7 + 8 + 9
20: 2 + 3 + 4 + 5 + 6	40: 6 + 7 + 8 + 9 + 10

### Impossible numbers

- The **ONLY** numbers that are impossible to get from consecutive sums are:
- 1, 2, 4, 8, 16, 32, 64, 128, 256, ...
- Crazy, right?

### COMPETITION

- There are **FIVE** ways to get 45. The first pair to find them all without a calculator wins!!!
- **DO NOT SAY ANY OUT LOUD!** You will give them away!!! Also, please do not look at other papers – that will disqualify you!

### 5 ways to get 45

1.  $22 + 23$
2.  $14 + 15 + 16$
3.  $7 + 8 + 9 + 10 + 11$
4.  $5 + 6 + 7 + 8 + 9 + 10$
5.  $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9$

### Whiteboards!!!

- The fastest class picking up and the fastest class putting away will each get a point.
- I will stop the timer when each person has a whiteboard, marker, and eraser and is sitting in their desk again.
- Use the markers from the cabinet, not the ones from the board.

### Today's Objectives

- Refresh our memory on:
  - Long division
  - Multiplication
  - Multiplying & dividing decimals

### Long Division

$$4 \overline{)143}$$

$$35\frac{3}{4} \text{ or } 35.75$$

### ON YOUR WHITEBOARD:

- Must do the challenge problem if you get to it.

1.  $6 \overline{)81}$  **13.5**
2.  $8 \overline{)3}$  **0.375**
3.  $3 \overline{)757}$  **252.\overline{3}**
4.  $11 \overline{)24}$  **2.1\overline{8}**
5. (Challenge)  $7 \overline{)16}$  **2.285714**

### ON YOUR WHITEBOARD:

- Must do the challenge problem if you get to it.

1.  $48 \cdot 7$  **336**
2.  $97 \cdot 97$  **9409**
3. (Challenge)  $792 \cdot 380$  **300,960**

With decimals...

$$5 \overline{)1.28}$$

**0.256**

$$2.3 \cdot 1.4$$

**3.22**

**ON YOUR WHITEBOARD:**

- Must do the challenge problems if you get to them.

1.  $5.6 \cdot 12$  **67.2**
2.  $3 \overline{)14.9}$  **4.96**
3.  $9.4 \cdot 9.4$  **88.36**
4. **(Challenge)**  $0.8 \overline{)1.37}$  **1.7125**
5. **(Challenge)**  $124.6 \cdot 0.78$  **97.188**

## HOMEWORK

- Multiplication & Division WS