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DISCRETE

TROICI/GOSSE

### LESSON #3: SUMMATION SCAVENGAR HUNT!

Do Now: Evaluate the following summations

<p>1. <math>\sum_{i=1}^4 3i + 2</math></p> <p><math>(3(1)+2) + (3(2)+2) + (3(3)+2) + (3(4)+2)</math></p> <p>5 + 8 + 11 + 14</p> <p><b>38</b></p>	<p>2. <math>\sum_{i=-2}^5 i^2 - i</math></p> <p><math>(-2)^2 - (-1) + (-1)^2 - (-1) + 0^2 - 0 + 1^2 - 1 + 2^2 - 1 + 3^2 - 1 + 4^2 - 1 + 5^2 - 1</math></p> <p>3 + 0 - 1 + 0 + 3 + 8 + 15 + 24 =</p> <p><b>52</b></p>
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### SCAVENGAR HUNT DIRECTIONS!

1. Look around the room and in the hallway, there are 8 index cards with summation problems on them.
2. Choose a partner and pick an index card to start at.
3. Solve the summation on the index card in front of you using the space on the back of this worksheet.
4. Look for your answer on another index card around the room/in the hallway
5. If you end up where you started, then you successfully completed the activity!

If you and your partner come in:

**1<sup>st</sup> Place**- 3 points on Summations Quiz

**2<sup>nd</sup> Place**- 2 points on Summations Quiz

**3<sup>rd</sup> Place**- 1 point on Summations Quiz

**GOOD LUCK!!!!!!!!!!!!!! ☺**

# SCAVENGER HUNT WORKSPACE!

Problem #1:

$$\sum_{r=0}^6 2r - 1$$

$$(2(0) - 1) + (2(1) - 1) + (2(2) - 1) + (2(3) - 1) + (2(4) - 1) + (2(5) - 1) + (2(6) - 1)$$

$$-1 + 1 + 3 + 5 + 7 + 9 + 11 = \boxed{35}$$

Problem #2:

$$\sum_{c=-2}^5 (c^2 + 3)$$

$$((-2)^2 + 3) + ((-1)^2 + 3) + (0^2 + 3) + (1^2 + 3) + (2^2 + 3) + (3^2 + 3) + (4^2 + 3) + (5^2 + 3)$$

$$7 + 4 + 3 + 4 + 7 + 12 + 19 + 28 = \boxed{84}$$

Problem #3:

$$\sum_{m=1}^4 (5m^2 + 4)$$

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

$$9 + 24 + 49 + 84 = \boxed{166}$$

Problem #4:

$$\sum_{a=4}^9 (20 - a^2)$$

$$(20 - 4^2) + (20 - 5^2) + (20 - 6^2) + (20 - 7^2) + (20 - 8^2) + (20 - 9^2)$$

$$4 + -5 + -16 + -29 + -44 + -61 = \boxed{-151}$$

Problem #5:

$$\sum_{m=1}^6 \frac{m^2+1}{m}$$

$$\left(\frac{1^2+1}{1}\right) + \left(\frac{2^2+1}{2}\right) + \left(\frac{3^2+1}{3}\right) + \left(\frac{4^2+1}{4}\right) + \left(\frac{5^2+1}{5}\right) + \left(\frac{6^2+1}{6}\right)$$

$$1 + \frac{5}{2} + \frac{10}{3} + \frac{17}{4} + \frac{26}{5} + \frac{37}{6} = 23.45 \text{ or } \frac{449}{20}$$

Problem #6:

$$\sum_{n=4}^9 (100-n)$$

$$(100-4) + (100-5) + (100-6) + (100-7) + (100-8) + (100-9)$$
$$96 + 95 + 94 + 93 + 92 + 91 = 561$$

Problem #7:

$$\sum_{m=1}^5 3m$$

$$3(1) + 3(2) + 3(3) + 3(4) + 3(5)$$
$$3 + 6 + 9 + 12 + 15$$

$$45$$

Problem #8:

$$\sum_{k=1}^7 30-k$$

$$182$$

$$(30-1) + (30-2) + (30-3) + (30-4) + (30-5) + (30-6) + (30-7)$$
$$29 + 28 + 27 + 26 + 25 + 24 + 23$$

