## The Sum of an Arithmetic Series

1. Determine the sum of each arithmetic series.

a) 
$$3 + 12 + 21 + 30 + 39 + 48$$
b)  $19 + 31 + 43 + 55 + 67 + 79 + 91$ 

$$5 = \frac{2}{3}(15)$$
c)  $6 + 13 + 20 + 27 + 34 + 41 + 48 + 55$ 
d)  $25 + 31 + 37 + 43 + 49 + 55 + 61 + 67 + 73$ 

$$5 = \frac{2}{3}(6 + 56)$$

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2. For the arithmetic series 6 + 8 + 10 + 12 + ...

a) Determine the 20th term.

= 6+(20-1)(2) = 6 +38

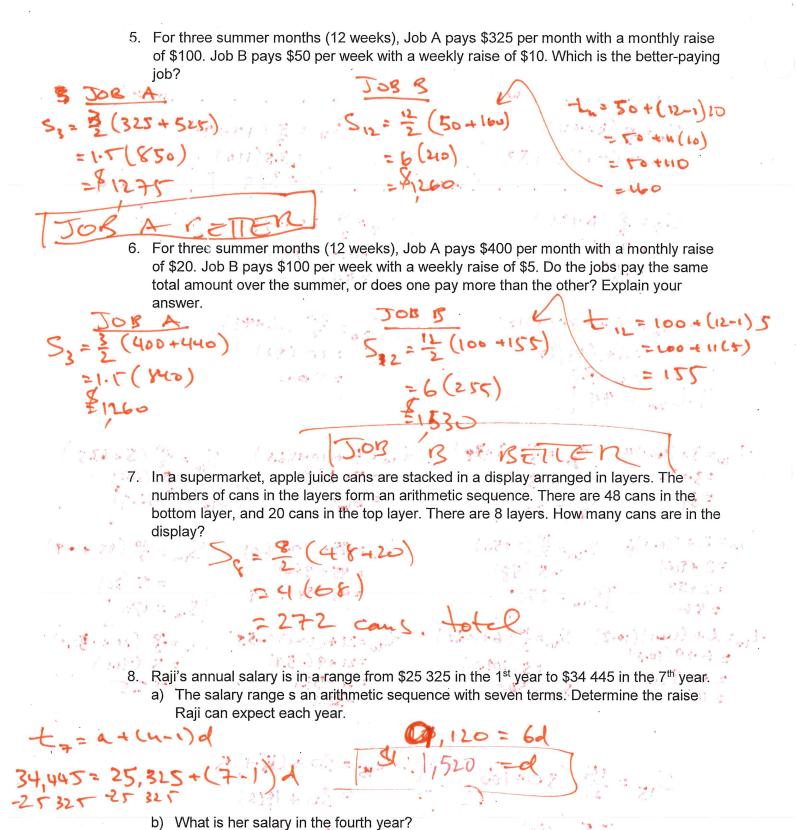
b) determine the sum of the first 20 terms.

3. Determine the sum of the first 10 terms of each arithmetic series.

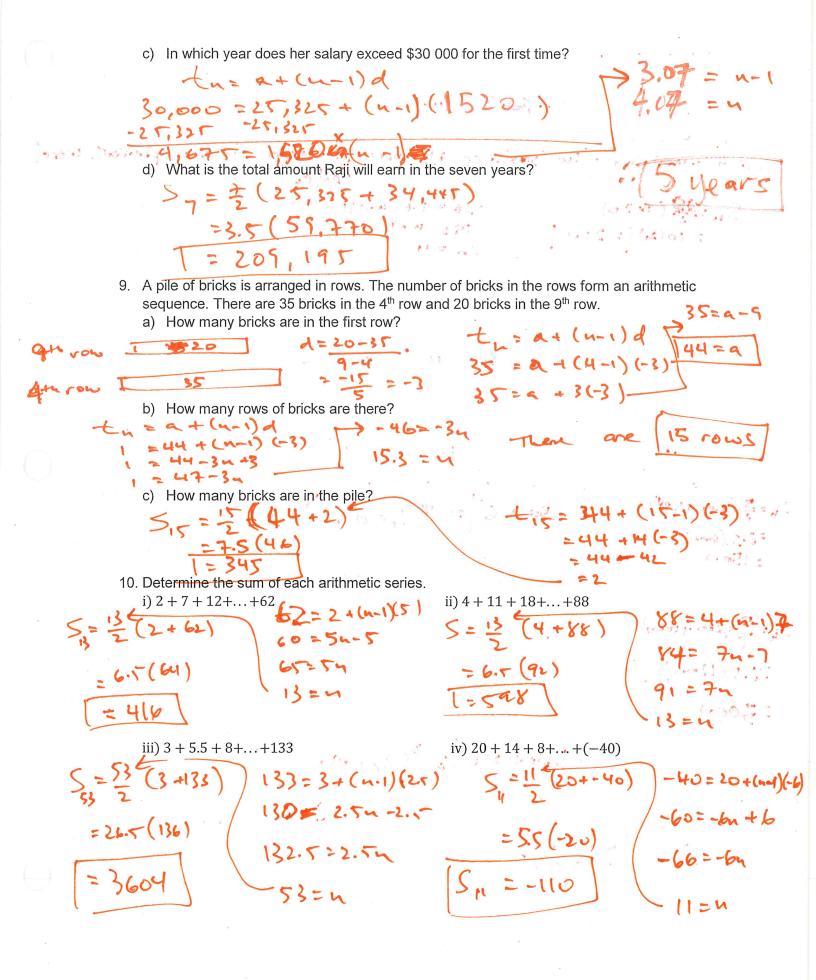
a) 
$$3+7+11+...$$

to =  $3+(10-1)4$ 
 $5=\frac{1}{2}(3+39)$ 
 $=\frac{1}{3}+36$ 
 $=\frac{1}{3}(42)$ 
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4. Tasty Treats finds that its profit from the sale of ice cream increases by \$5 per week during the 15-week summer season. Suppose the profit for the first week is \$30.



 $t_{q} = a + (n-1) q$  = 25,325 + (4-1) (1,520) = 25,325 + 3 (1,520) = 25,325 + 4,560 (-29,885)



11. This sentence is called a "snowball sentence."

I do not know where family doctors acquired perplexing handwriting; nevertheless, extraordinary pharmaceutical intellectuality, counterbalancing indecipherability, transcendentalizes intercommunications' incomprehensibleness.

a) Why is the name "snowball sentence" appropriate?

Each word in the soulace is one longer than previous word

b) How many letters are in this snowball sentence?

- 12. In the popular TV quiz show "Jeopardy!", a contestant gives each response as a question to a clue hidden behind a panel that shows an amount of money. When contestant's response is correct, the contestant wins the money. Answer the questions below in as many different ways as you can.
  - a) In "Jeopardy!" (below), what is the total amount of money shown?

1 . 1 13	2	<b>3</b> , 10	4	5.0	<b>(</b>
Word	Oceans	Science	Movies	Modern	This &
Origins	. A part	73	4.	Poetry	That
\$100	\$100	\$100	\$100	\$100	\$100
\$200	\$200	\$200	-\$200 💤	\$200	\$200 🏄
\$300	\$300	\$300	\$300	\$300	\$300
\$400	\$400	\$400	\$400	\$400	\$400
\$500	\$500	\$500	\$500	\$500	\$500

5. = 2. (100 + Tol

b) In "Double Jeopardy!" (below), what is the total amount shown?

72.5 (1200)

Food	TV	Sports	Math	Drama	Odds
1 / 3	Quiz	21 .	13.3		& *
	Show	5		1 1 1	Ends
\$200	\$200	\$200	\$200	\$200	\$200 ,
\$400	\$400	\$400	\$400	\$400	\$400
\$600	\$600	\$600	\$600	\$600	\$600
\$800	\$800	\$800	\$800	\$800	\$800
\$1000	\$1000	\$1000	\$1000	\$1000	\$1000

3000861=418,000

## Answers:

1a) 153 b) 385 c) 244 d) 441 2a) 44 b) 500 3)a) 210 b) 342.5 c) 290 d) 180 e) 546 f) -55.5

4) \$975 5) Job A 6) Job B pays more. Explanations may vary. 7) 272

8a) 1520 b) 24 85 c 5 wee d) \$209 195 9a) 44 b) 15 c) 345