

2nd Semester Final Exam

Integrated Math I

Unit 5: Real World Applications

Solve each question. Round your answer to the nearest hundredth when needed.

1) Kim can pick forty bushels of apples in 15 hours. Joe can pick the same amount in 13 hours. If they worked together how long would it take them?

2) A diesel train left Abuja traveling west one hour before a freight train. The freight train traveled in the opposite direction going 25 km/h faster than the diesel train for 14 hours after which time the trains were 1945 km apart. What was the diesel train's speed?

3) A jet left Tokyo one hour before an Air Force plane. The planes flew in opposite directions. The Air Force plane flew at 230 mph for two hours. After this time the planes were 1510 mi. apart. Find the jet's speed.

4) Beth wants to make 24 fl. oz. of a 45% sugar solution by mixing together a 30% sugar solution and a 60% sugar solution. How much of each solution must she use?

5) Find the value of two numbers if their sum is 24 and their difference is 2.

6) Kali and Sarawong are selling pies for a school fundraiser. Customers can buy blueberry pies and pumpkin pies. Kali sold 5 blueberry pies and 3 pumpkin pies for a total of \$147. Sarawong sold 6 blueberry pies and 4 pumpkin pies for a total of \$184. What is the cost each of one blueberry pie and one pumpkin pie?

7) Mary and Asanji each improved their yards by planting hostas and ornamental grass. They bought their supplies from the same store. Mary spent \$138 on 4 hostas and 10 bunches of ornamental grass. Asanji spent \$111 on 8 hostas and 5 bunches of ornamental grass. What is the cost of one hosta and the cost of one bunch of ornamental grass?

8) Anjali's school is selling tickets to the annual dance competition. On the first day of ticket sales the school sold 13 senior citizen tickets and 13 child tickets for a total of \$286. The school took in \$214 on the second day by selling 13 senior citizen tickets and 5 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

9) The senior classes at High School A and High School B planned separate trips to Yellowstone National Park. The senior class at High School A rented and filled 13 vans and 7 buses with 238 students. High School B rented and filled 10 vans and 14 buses with 364 students. Each van and each bus carried the same number of students. Find the number of students in each van and in each bus.

10) John spent \$36 on eating utensils. Spoons cost \$2 and forks cost \$6. If he bought a total of 10, then how many of each kind did he buy?

11) At Adam's Printing Company LLC there are two kinds of printing presses: Model A which can print 70 books per day and Model B which can print 75 books per day. The company owns 16 total printing presses and this allows them to print 1160 books per day. How many of each type of press do they have?

12) Traveling with the current a certain boat went 22 mph. Against the same current it only went 6 mph. Find the speed of the boat in still water and the speed of the current.

13) A boat traveled 256 kilometers each way downstream and back. The trip downstream took 8 hours. The trip back took 16 hours. What is the speed of the boat in still water? What is the speed of the current?

Unit 6: Arithmetic Sequences

Determine if the sequence is arithmetic. If it is, then find the common difference.

14) 40, 70, 100, 130, ...	15) -13, -6, 1, 8, ...
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Find the specified formula for each of the given arithmetic sequences:

16) Recursive Formula for -12, -15, -18, -21, ...	17) Explicit Formula for -4, 16, 36, 56, ...
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Given the arithmetic sequence answer each of the following:

14, 4, -6, -16, ...

18) Find the next three terms	19) Find a_{24}	20) Find a_{52}
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Find the missing term or terms in each arithmetic sequence.

21) ..., -25, ____, -19, ...

22) ..., -15, ____, ____, -33, ...

23) ..., 9, ____, ____, ____, 41, ...

24) ..., 3, ____, ____, ____, ____, -497...

25) ..., 1, ____, ____, ____, ____, ____, 1201, ...

Evaluate the related series of the sequence.

26) 9, 16, 23, 30, 37, 44, 51

Evaluate each arithmetic series described:

27) $11 + 14 + 17 + 20 \dots$, $n = 11$

28) $\sum_{k=1}^{15} (2k + 5)$

29) $a_1 = 14$, $d = 4$, $n = 20$

Unit 7: Geometric Sequences

Determine if the sequence is geometric. If it is, then find the common ratio.

30) -4, -8, -16, -32, ...	31) -4, -16, -64, -256, ...
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Find the specified formula for each of the given arithmetic sequences:

32) Recursive Formula for 4, -24, 144, -864, ...	33) Explicit Formula for 2, 6, 18, 54, ...
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Given the arithmetic sequence answer each of the following:

-4, -8, -16, -32, ...

34) Find the next three terms	35) Find a_8	36) Find a_{12}
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Find the missing term or terms in each arithmetic sequence.

37) ..., -3, _____, -75, ...
38) ..., 4, _____, _____, 32, ...
39) ..., 3, _____, _____, _____, 3888, ...
40) ..., 2, _____, _____, _____, _____, 6250, ...
41) ..., -4, _____, _____, _____, _____, _____, -186624, ...

Evaluate the related series of the sequence.

42. -1, -4, -16, -64, -256

Evaluate each arithmetic series described:

43) $2 - 6 + 18 - 54 \dots, n = 9$

44) $\sum_{k=1}^7 2(3)^{k-1}$

45) $a_1 = -4, a_{10} = -2048, r = 2$

Unit 8: Statistics

Find the mean, median, mode, range, maximum, and medium:

46)

Single Family Home Prices

\$131,900	\$122,100	\$121,200	\$115,100	\$110,000	\$107,800
\$104,500	\$110,100	\$127,200	\$128,500	\$153,800	\$118,200
\$144,500	\$105,700	\$121,500	\$112,700	\$134,300	\$132,500
\$111,500	\$126,900	\$124,600	\$118,200	\$112,800	

Maximum	Minimum	Range	Mean	Median	Mode

Draw a dot plot for each data set:

47)

Works in Book Titles

4	4	5	2	3	2
2	3	3	4	3	1
1	1	2	2	2	5
2	3	5	1		

Draw a stem-and-leaf plot for each data set:

48)

Minutes to Run 5km

48.1	31.4	43	34.5	32.9	42
27.7	33	33.8	16.7	29	34.8
30	38.7	26	29.2	34.8	32
34	33.7	30			

Draw a histogram for the data set:

49)

Words in Book Titles

3	6	3	2	4	4
1	3	2	3	2	5
4	6	5	2	2	3
4	6	2	4		

Draw a box-and-whisker plot for each data set:

50)

Injuries Due to Distracted Driving per Month

8949	9640	10946	9317	5409	11360
6824	10046	6708	7266	8720	9447
8911	10145	7661	7544	10529	9910
7271	12328	8833	9655	5874	