

## 2<sup>nd</sup> Semester Final Exam Pretest

### Integrated Math I

#### Unit 5: Real World Applications

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

1) Working alone, it takes Mary 11 hours to clean an attic. Gabriella can clean the same attic in 15 hours. Find how long it would take them if they worked together.

2) A cruise ship left Miami and traveled to Puerto Plata at an average speed of 5km/h. A fishing boat left sometime later traveling in the opposite direction with an average speed of 30 km/h. After the cruise ship had traveled for four hours the ships were 50 km apart. Find the number of hours the fishing boat traveled.

3) An Air Force plane left London flying west three hours before a cargo plane. The cargo plane flew in the opposite direction going 205 km/h faster than the Air Force plane for seven hours after which time the planes were 5090 km apart. What was the Air Force plane's speed?

4) Jasmine asked you to make 14 L of fruit juice that contains 55% fruit juice by mixing together with some Sweet Tropical Fruit Punch and some grape juice. How much of each ingredient do you need if the Sweet Tropical Fruit Punch contains 30% juice?

5) Find the value of two numbers if their sum is 25 and their difference is 1

6) Carlos and Kim are selling cookie dough for a school fundraiser. Customers can buy packages of chocolate chip cookie dough and packages of oatmeal cookie dough. Carlos sold 5 packages of chocolate chip cookie dough and 10 packages of oatmeal cookie dough for a total of \$180. Kim sold 9 packages of chocolate chip cookie dough and 5 packages of oatmeal cookie dough for a total of \$142. What is the cost each of one package of chocolate chip cookie dough and one package of oatmeal cookie dough?

7) Eugene and Eduardo each improved their yards by planting daylilies and ornamental grass. They bought their supplies from the same store. Eugene spent \$22 on 1 daylily and 8 bunches of ornamental grass. Eduardo spent \$50 on 5 daylilies and 10 bunches of ornamental grass. What is the cost of one daylily and the cost of one bunch of ornamental grass?

8) Jaidee's school is selling tickets to the annual dance competition. On the first day of ticket sales the school sold 6 senior citizen tickets and 12 student tickets for a total of \$144. The school took in \$198 on the second day by selling 13 senior citizen tickets and 7 student tickets. What is the price each of one senior citizen ticket and one student ticket?

9) The senior classes at HAHS and Milford planned separate trips to the state fair. The senior class at HAHS rented and filled 11 vans and 4 buses with 312 students. Milford rented and filled 12 vans and 1 bus with 226 students. Every van had the same number of students in it as did the busses. How many students can a van carry? How many students can a bus carry?

10) Nicole spent \$44 on shirts. Tee shirts cost \$4 and long sleeve shirts cost \$10. If she bought a total of 8, then how many of each kind did she buy?

11) Kim's Printing Inc. has two type of printing presses: Model A and Model B. Model A can print 60 books per day and Model B can print 50 books per day. Altogether Kim has 18 printing presses. If she can print 990 books in a day, then how many of each press does she have?

12) Flying to San Diego with a tailwind a plane averaged 287 km/h. On the return trip the plane only averaged 225 km/h while flying back into the same wind. Find the speed of the plane in still air and the speed of the wind.

13) A plane traveled 1716 miles each way to Washington DC and back. The trip there was with the wind. It took 13 hours. The trip back was into the wind. The trip back took 22 hours. Find the speed of the plane in still air and the speed of the wind.

### Unit 6: Arithmetic Sequences

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

14) -36, -43, -50, -57, ...	15) -12, 188, 388, 588, ...
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**Find the specified formula for each of the given arithmetic sequences:**

16) Recursive Formula for -7, -4, -1, 2, ...	17) Explicit Formula for 14, 21, 28, 35, ...
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**Given the arithmetic sequence answer each of the following:**

**-40, -140, -240, -340, ...**

18) Find the next three terms	19) Find $a_{30}$	20) Find $a_{52}$
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Find the missing term or terms in each arithmetic sequence.

21) ..., 20, \_\_\_\_\_, 60, ...

22) ..., 23, \_\_\_\_\_, \_\_\_\_\_, 44, ...

23) ..., 30, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, 70, ...

24) ..., -15, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, 35...

25) ..., -30, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, -66, ...

Evaluate the related series of the sequence.

26) 37, 44, 51, 58, 65, 72, 79

Evaluate each arithmetic series described:

27)  $18 + 25 + 32 + 39 \dots, n = 18$

28)  $\sum_{n=1}^{14} (10n - 17)$

29)  $a_1 = 15, d = 5, n = 11$

**Unit 7: Geometric Sequences**

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

30) -4, -20, -100, -500, ...	31) 1, 5, 25, 125, ...
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Find the specified formula for each of the given arithmetic sequences:

32) Recursive Formula for 1, -4, 16, -64, ...	33) Explicit Formula for 3, 9, 27, 81, ...
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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 $a_{10}$
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Find the missing term or terms in each arithmetic sequence.

37) ..., 4, _____, 100, ...
38) ..., -3, _____, _____, -648, ...
39) ..., 3, _____, _____, _____, 48, ...
40) ..., -3, _____, _____, _____, _____, -9375, ...
41) ..., 4, _____, _____, _____, _____, _____, 256, ...

Evaluate the related series of the sequence.

42. -3, 18, -108, 648, -3888

Evaluate each arithmetic series described:

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

44)  $\sum_{n=1}^8 (-6)^{n-1}$

45)  $a_1 = 2, a_8 = -559872, r = -6$

**Unit 8: Statistics**

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

46) Goals in a Hockey Game

5, 11, 3, 5, 7, 5, 9, 6, 3, 3, 9, 11, 3, 5, 7, 4, 5, 7, 5, 6, 12

Mean	Median	Mode	Range	Maximum	Medium

**Draw a dot plot for each data set:**

47) Age at First Job

14, 16, 13, 16, 16, 15, 21, 18, 16, 21, 19, 22, 18, 15, 17, 15, 13, 13, 17, 17, 16, 18, 17

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

48) Injuries Due to Distracted Driving per Month

6,811 9,498 4,771 8,376 9,443 7,829 5,921 5,050  
4,296 6,380 9,877 7,634 8,114 9,666 4,375 8,139  
8,958 8,822 7,415 12,049 10,306

**Draw a histogram for the data set:**

49) Shoe Size

7.5 6.5 9 10 10 8 7.5 8.5 7 9 7.5 9  
8 8.5 8.5 10 9.5 8.5 8 5.5 8 9.5

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

50) Age at First Job

17, 22, 16, 19, 15, 23, 17, 17, 16, 14, 16, 12, 14, 17, 15, 16, 18, 18, 15, 18, 22

