

Review Sheet: Word Problems (Systems, Work, Mixture, Etc) Date _____

- 1) A plane traveled 560 miles to Madrid and back. The trip there was with the wind. It took 5 hours. The trip back was into the wind. The trip back took 10 hours. What is the speed of the plane in still air? What is the speed of the wind?
- 2) When you reverse the digits in a certain two-digit number you decrease its value by 27. Find the number if the sum of its digits is 7.
- 3) The school that Ryan goes to is selling tickets to a fall musical. On the first day of ticket sales the school sold 8 adult tickets and 7 student tickets for a total of \$157. The school took in \$239 on the second day by selling 14 adult tickets and 9 student tickets. What is the price each of one adult ticket and one student ticket?
- 4) Scott's school is selling tickets to a spring musical. On the first day of ticket sales the school sold 9 adult tickets and 11 student tickets for a total of \$204. The school took in \$120 on the second day by selling 12 adult tickets and 2 student tickets. What is the price each of one adult ticket and one student ticket?
- 5) Chelsea and Emily are selling flower bulbs for a school fundraiser. Customers can buy packages of tulip bulbs and packages of crocus bulbs. Chelsea sold 14 packages of tulip bulbs and 7 packages of crocus bulbs for a total of \$315. Emily sold 14 packages of tulip bulbs and 5 packages of crocus bulbs for a total of \$281. What is the cost each of one package of tulips bulbs and one package of crocus bulbs?
- 6) Nicole and Imani each improved their yards by planting grass sod and geraniums. They bought their supplies from the same store. Nicole spent \$152 on 11 ft² of grass sod and 8 geraniums. Imani spent \$88 on 4 ft² of grass sod and 7 geraniums. Find the cost of one ft² of grass sod and the cost of one geranium.
- 7) Amanda and Asanji are selling flower bulbs for a school fundraiser. Customers can buy packages of tulip bulbs and packages of crocus bulbs. Amanda sold 12 packages of tulip bulbs and 12 packages of crocus bulbs for a total of \$288. Asanji sold 12 packages of tulip bulbs and 11 packages of crocus bulbs for a total of \$275. Find the cost each of one package of tulips bulbs and one package of crocus bulbs.
- 8) Flying to Shanghai with a tailwind a plane averaged 120 km/h. On the return trip the plane only averaged 44 km/h while flying back into the same wind. Find the speed of the wind and the speed of the plane in still air.
- 9) The difference of two numbers is 1. Their sum is 27. Find the numbers.
- 10) The sum of two numbers is 24. Their difference is 4. What are the numbers?

- 11) A plane traveled 644 miles to Rome and back. The trip there was with the wind. It took 7 hours. The trip back was into the wind. The trip back took 14 hours. What is the speed of the plane in still air? What is the speed of the wind?
- 12) The sum of the digits of a certain two-digit number is 11. Reversing its digits increases the number by 9. Find the number.
- 13) A plane traveled 1152 miles to Tokyo and back. The trip there was with the wind. It took 12 hours. The trip back was into the wind. The trip back took 24 hours. Find the speed of the plane in still air and the speed of the wind.
- 14) The senior classes at High School A and High School B planned separate trips to the local amusement park. The senior class at High School A rented and filled 12 vans and 4 buses with 344 students. High School B rented and filled 11 vans and 6 buses with 411 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?
- 15) James' school is selling tickets to a fall musical. On the first day of ticket sales the school sold 12 adult tickets and 13 student tickets for a total of \$225. The school took in \$180 on the second day by selling 14 adult tickets and 6 student tickets. Find the price of an adult ticket and the price of a student ticket.
- 16) Perry and Jack each improved their yards by planting grass sod and shrubs. They bought their supplies from the same store. Perry spent \$76 on 7 ft² of grass sod and 2 shrubs. Jack spent \$44 on 3 ft² of grass sod and 2 shrubs. What is the cost of one ft² of grass sod and the cost of one shrub?
- 17) Shawna and Heather are selling cheesecakes for a school fundraiser. Customers can buy French silk cheesecakes and chocolate marble cheesecakes. Shawna sold 3 French silk cheesecakes and 2 chocolate marble cheesecakes for a total of \$95. Heather sold 5 French silk cheesecakes and 2 chocolate marble cheesecakes for a total of \$133. What is the cost each of one French silk cheesecake and one chocolate marble cheesecake?
- 18) Flying to Las Vegas with a tailwind a plane averaged 279 km/h. On the return trip the plane only averaged 255 km/h while flying back into the same wind. What is the speed of the wind? How fast would the plane go if there were no wind?
- 19) The school that Mark goes to is selling tickets to the annual dance competition. On the first day of ticket sales the school sold 10 senior citizen tickets and 12 child tickets for a total of \$136. The school took in \$160 on the second day by selling 14 senior citizen tickets and 13 child tickets. What is the price each of one senior citizen ticket and one child ticket?
- 20) Going down the river a boat went 10 km/h. Going up the river it only went 2 km/h. Find the speed of the boat in still water and the speed of the current.

- 21) Huong and her brother mixed together some soil and some sand to make 5 yd^3 of soil with a 60% sand content. They used 1 yd^3 of sand and 4 yd^3 of a soil they purchased. What was the sand content of the soil they purchased?
- 22) Matt asked you to make 12 L of fruit punch that contains 42% fruit juice by mixing together some amount of Brand A fruit punch and some amount of Brand B fruit punch. Brand A contains 44% fruit juice and Brand B contains 36% fruit juice. How much of each do you need?
- 23) Mary asked you to make 15 gal. of fruit punch that contains 15% fruit juice by mixing together some amount of Brand A fruit punch and some amount of Brand B fruit punch. Brand A contains 35% fruit juice and Brand B contains 5% fruit juice. How much of each do you need?
- 24) Norachai and his brother mixed together some soil and some sand to make 10 ft^3 of soil with a 67% sand content. They used 4 ft^3 of sand and 6 ft^3 of a soil they purchased. What was the sand content of the soil they purchased?
- 25) A metal alloy weighing 2 mg and containing 80% platinum is melted and mixed with 12 mg of a different alloy which contains 10% platinum. What percent of the resulting alloy is platinum?
- 26) A metal alloy weighing 1 mg and containing 30% platinum is melted and mixed with 6 mg of pure platinum. What percent of the resulting alloy is platinum?
- 27) A metal alloy weighing 3 oz. and containing 10% gold is melted and mixed with 2 oz. of pure gold. What percent of the resulting alloy is gold?
- 28) Mofor wants to make a 22% saline solution. He has already poured 5 fl. oz. of pure water into a beaker. How many fl. oz. of a 32% saline solution must he add to this to create the desired mixture?
- 29) How many qt. of a 45% sugar solution must be mixed with 9 qt. of pure water to make a 18% solution?
- 30) 5 ml of a saline solution was mixed with 2 ml of a 10% saline solution to make a 60% saline solution. Find the percent concentration of the first solution.
- 31) A cargo plane flew to Moscow and back. The trip there took six hours and the trip back took five hours. It averaged 76 mph faster on the return trip than on the outbound trip. Find the cargo plane's average speed on the outbound trip.
- 32) Maria left Carlos' house and traveled east at an average speed of 42 mph. Stefan left some time later traveling in the same direction at an average speed of 70 mph. After traveling for three hours Stefan caught up with Maria. Find the number of hours Maria traveled before Stefan caught up.

- 33) A cruise ship traveled to Madagascar and back. It took one hour longer to go there than it did to come back. The average speed on the trip there was 18 km/h. The average speed on the way back was 27 km/h. How many hours did the trip there take?
- 34) An Air Force plane left Rome and flew south at an average speed of 250 km/h. A jet left four hours later and flew in the same direction but with an average speed of 450 km/h. How long did the Air Force plane fly before the jet caught up?
- 35) Ashley made a trip to her cabin on the lake and back. The trip there took six hours and the trip back took four hours. What was Ashley's average speed on the trip there if she averaged 60 km/h on the return trip?
- 36) Julio drove to the recycling plant and back. The trip there took two hours and the trip back took five hours. What was Julio's average speed on the trip there if he averaged 30 mph on the return trip?
- 37) A container ship traveled to Guam and back. It took two hours less time to get there than it did to get back. The average speed on the trip there was 28 mph. The average speed on the way back was 20 mph. How many hours did the trip there take?
- 38) Dan left Abhasra's house and drove toward the town hall at an average speed of 32 mph. Castel left one hour later and drove in the same direction but with an average speed of 40 mph. Find the number of hours Dan drove before Castel caught up.
- 39) An aircraft carrier and a submarine left Hawaii at the same time. The vessels traveled in opposite directions. The submarine traveled 5 mph faster than the aircraft carrier. After three hours they were 105 mi. apart. Find the aircraft carrier's speed.
- 40) Chelsea left the science museum and traveled toward her friend's house at an average speed of 57 km/h. Trevon left some time later traveling in the same direction at an average speed of 76 km/h. After traveling for three hours Trevon caught up with Chelsea. Find the number of hours Chelsea traveled before Trevon caught up.

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

- 41) It takes Perry eight hours to tar a roof. Rob can tar the same roof in 11 hours. If they worked together how long would it take them?
- 42) Working together, Brenda and Micaela can pick forty bushels of apples in 6.16 hours. Had she done it alone it would have taken Micaela 11 hours. Find how long it would take Brenda to do it alone.
- 43) Working alone, it takes Kristin ten minutes to sweep a porch. Kali can sweep the same porch in 13 minutes. If they worked together how long would it take them?
- 44) Stefan can oil the lanes in a bowling alley in ten hours. Abhasra can oil the same lanes in nine hours. If they worked together how long would it take them?
- 45) It takes Micaela ten hours to mop a warehouse. Mei can mop the same warehouse in eight hours. How long would it take them if they worked together?

- 46) Working alone, Julio can harvest a field in nine hours. One day his friend Willie helped him and it only took 4.24 hours. Find how long it would take Willie to do it alone.
- 47) Working together, Bill and Eugene can clean an attic in 5.76 hours. Had he done it alone it would have taken Eugene 9 hours. How long would it take Bill to do it alone?
- 48) Working alone, Anjali can clean an attic in 8 hours. Jill can clean the same attic in 14 hours. If they worked together how long would it take them?
- 49) It takes Julia nine minutes to sweep a porch. Imani can sweep the same porch in 11 minutes. Find how long it would take them if they worked together.
- 50) Daniel can sweep a porch in 12 minutes. One day his friend Heather helped him and it only took 5.14 minutes. Find how long it would take Heather to do it alone.

Answers to Review Sheet: Word Problems (Systems, Work, Mixture, Etc) (ID: 1)

- 1) plane: 84 mph, wind: 28 mph
- 2) 52
- 3) adult ticket: \$10, student ticket: \$11
- 4) adult ticket: \$8, student ticket: \$12
- 5) package of tulips bulbs: \$14, package of crocus bulbs: \$17
- 6) ft² of grass sod: \$8, geranium: \$8
- 7) package of tulips bulbs: \$11, package of crocus bulbs: \$13
- 8) Plane: 82 km/h, Wind: 38 km/h
- 9) 13 and 14
- 10) 10 and 14
- 11) plane: 69 mph, wind: 23 mph
- 12) 56
- 13) plane: 72 mph, wind: 24 mph
- 14) Van: 15, Bus: 41
- 15) adult ticket: \$9, student ticket: \$9
- 16) ft² of grass sod: \$8, shrub: \$10
- 17) French silk cheesecake: \$19, chocolate marble cheesecake: \$19
- 18) Plane: 267 km/h, Wind: 12 km/h
- 19) senior citizen ticket: \$4, child ticket: \$8
- 20) Boat: 6 km/h, Current: 4 km/h
- 21) 50%
- 22) 9 L of Brand A, 3 L of Brand B
- 23) 5 gal. of Brand A, 10 gal. of Brand B
- 24) 45%
- 25) 20%
- 26) 90%
- 27) 46%
- 28) 11 fl. oz.
- 29) 6 qt.
- 30) 80%
- 31) 380 mph
- 32) 5 hours
- 33) 3 hours
- 34) 9 hours
- 35) 40 km/h
- 36) 75 mph
- 37) 5 hours
- 38) 5 hours
- 39) 15 mph
- 40) 4 hours
- 41) 4.63 hours
- 42) 14 hours
- 43) 5.65 minutes
- 44) 4.74 hours
- 45) 4.44 hours
- 46) 8.02 hours
- 47) 16 hours
- 48) 5.09 hours
- 49) 4.95 minutes
- 50) 8.99 minutes