



Exam Sheet  
Grade-6  
GSW Junior  
Mathematics  
Tournament

April 6

2013

Grade -6

**DO NOT OPEN UNTIL YOU ARE INSTRUCTED TO DO SO**

1. Find the sum: 
$$\begin{array}{r} 372 \\ 433 \\ \underline{546} \end{array}$$
2. Find the product:  $37 \times 542$ .
3. What is the remainder when 840 is divided by 17?
4. Find the quotient and express your answer as a mixed fraction in lowest terms:  

$$\left(4\frac{2}{3}\right) \div \left(1\frac{2}{5}\right)$$
5. What is 35% of 164?
6. Write the sum in lowest terms:  

$$\frac{5}{18} + \frac{7}{24}$$
7. Find the quotient:  $\frac{35}{24} \div \frac{49}{40}$ .
8. Find the quotient:  $95.88 \div 3.4$ .
9. Find the quotient:  $\frac{2.4 \times 10^{-6}}{1.2 \times 10^{-8}}$ .
10. What is the sum of the rational numbers in the following list?  

$$\sqrt{6}, \sqrt{8}, \sqrt{25}, \sqrt{40}, \sqrt{121}, \frac{\sqrt{18}}{\sqrt{2}}$$
11. A right triangle has sides of lengths 6 and 8. What is the perimeter of the triangle?
12. Find the least common multiple of 24 and 60.
13. Find the greatest common factor of 105 and 126.
14. Each morning you feed your dog  $\frac{3}{4}$  cup of dry dog food and at night you feed him  $\frac{1}{2}$  cup of dry dog food. If you buy a bag of dog food that contains 40 cups, how many days will the dog food last?
15. Solve for x:  $-\frac{7}{9}x + \frac{5}{6} = \frac{13}{54}$ .
16. Each student ticket to the school musical at Pulaski Middle School costs \$5, and each adult ticket costs \$6. The music department collected \$1,400 in ticket sales and sold 150 adult tickets. How many student tickets were sold?
17. The formula for the relationship between Fahrenheit and Celsius temperature is  $5F - 9C = 160$ . What Fahrenheit temperature corresponds to a Celsius temperature of  $30^\circ$ ?

18. Johnny, Sarah, and Benjamin were assigned by their science teacher to work on a project for class. Johnny worked  $3\frac{3}{4}$  hours on his part of the project, Sarah worked  $4\frac{1}{12}$  hours on her part, and Benjamin worked  $4\frac{1}{6}$  hours on his part. How many hours did they collectively work on the project?
19. The points (3, -12) and (x, 44) are on a line whose slope is 7. What is x?
20. The ratio of the number of Sedrick's CDs to the number of Tonia's CDs is 7 to 8. Sedrick has 84 CDs. Together how many CDs do they have?
21. A car travels 221.25 miles in  $3\frac{3}{4}$  hours. What was its average speed in miles per hour?
22. Tom's salary last year was \$40,000. This year his salary is \$42,000. What percent increase was his raise?
23. If 88% is expressed as a fraction in lowest terms, what is the sum of its numerator and denominator?
24. The angles of a triangle are  $2x$ ,  $3x$ , and  $5x$ . What is the degree measure of the largest angle of the triangle?
25. The circumference of circle P is  $12\pi$  and the circumference of circle Q is  $6\pi$ . How many times larger is the area of circle P than the area of circle Q?
26. A closed box has dimensions 6 by 8 by 10. How many square units is its surface area?
27. A trapezoid has area 168. The bases of the trapezoid are  $x$  and  $x - 2$ . If its height is 12 inches, what is the length of the longest base of the trapezoid?
28. A regular hexagon and a regular octagon both have perimeters of 240 inches. How much larger is each side of the hexagon than each side of the octagon?
29. Order these numbers from smallest to largest:  $\frac{4}{7}$ ,  $\frac{7}{11}$ ,  $\frac{6}{13}$ .

30. The Jackson Middle School Mathematics Club is selling pizzas and sandwiches to raise money. The club charges \$6.25 for each pizza and \$4.50 for each sandwich. It costs the club \$3.75 for each pizza and \$2.75 for each sandwich. If they sell 23 pizzas and 32 sandwiches, how much profit does the club make?

31. In which quadrant of the coordinate plane is the point  $(x^2 + 8x - 6, x^3 + x + 1)$  if  $x = -2$ ?

32. Simplify the following:  
$$30\left(\frac{2}{5}x - \frac{4}{3}y + \frac{1}{2}z\right) - 42\left(\frac{5}{7}x + \frac{2}{3}y - \frac{1}{2}z\right)$$



Exam Sheet  
Grade-7 GSW  
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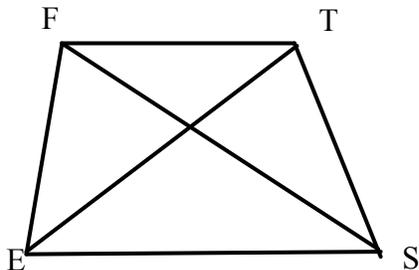
Grade -7

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- Shalya's math test grades are 86, 88, 90, 92, and 99. What is her math test average?
- The number of students per school attending a math fest is shown for 10 schools. What is the median value for this data?

5, 7, 7, 8, 8, 10, 11, 13, 15, 18

3.



In the trapezoid FEST shown there are 2 diagonals FS and ET. Compare or contrast the areas of the triangles FSE and ETS.

- they are equal
  - FST has the larger area
  - ETS has the larger area
- What is the next number in this pattern?  
26, 51, 76, 101, 126, \_\_\_\_\_
  - Bo, Jo and Flo all bought shoes. Jo paid twice what Bo paid and Flo paid \$20 more than what Bo paid. All together they paid \$140. How much did Bo pay for his shoes?

- Jay buys a city pool pass for all summer that costs \$100. This includes unlimited visits and registration. Clay, on the other hand, pays a registration fee of \$15 and \$5 per visit. How many visits to the pool by Clay would make his plan cost the same as the all-summer-pass plan that Jay purchased?

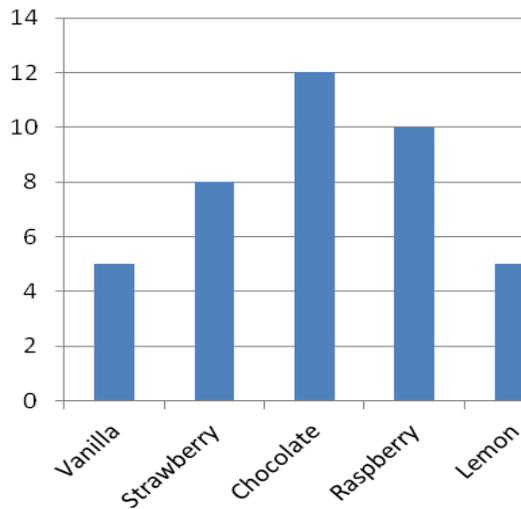
- Chad bought 8 DVD's at the same price and a \$15 dollar case to hold them. Before taxes his bill was \$47. What was the cost of each DVD?

- What is the rule for these paired values of  $x$  and  $y$ ?

$x$	$y$
0	-2
1	0
2	2
3	4

- Double  $x$ , subtract 2.
- Double  $x$ , add 2.
- Square  $x$ , subtract 2.
- Triple  $x$ , subtract 2.

9. The bar chart shows the number of the students in Ms. Harris' class and their ice cream preference. What percent of the students in her class prefer chocolate?

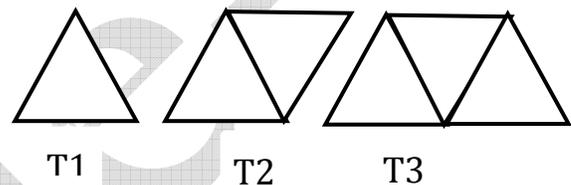


10. The temperature in Nome, Alaska one day last February varied from  $-12$  degrees low in the morning to  $21$  degrees high by mid afternoon. What was the temperature range for that day?
11. When the temperature in Rome, Italy is  $30$  degrees Celcius, what would be the equivalent temperature in Fahrenheit?  
 $F = (9/5)C + 32.$
12. Juan and his girlfriend spent Saturday afternoon at the mall. They paid for 2 theater tickets at  $\$8.25$  each, 2 popcorns at  $\$3.25$  each, 2 sodas at  $\$2.25$  each, and 2 ice cream cones at  $\$3.25$  each. They left home with  $\$35$ . How much did they return with?

13. Mr. Brown gave a math quiz. Five students made  $80$ , 8 students made  $85$ , 4 students made  $90$ , 2 students made  $95$  and 1 made  $100$ . What was the class average on this quiz?

14. Al has twice as many pennies as Bo, Bo has twice as many pennies as Cal, and Cal has twice as many as Dan. Together they have  $5280$  pennies. How many does Dan have?

15. T1 is composed of 3 line segments, T2 has 5, T3 has 7. How many line segments would there be in T9?



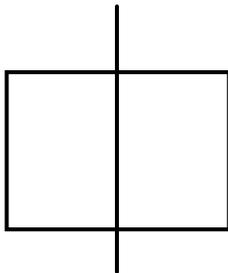
16. Two angles in a rhombus each measure  $25$  degrees. What is the measure of each of the other two angles?
17. In 1900 the population of Dry Gulch was  $2400$ . By the year 1960 Dry Gulch had increased in population by  $50\%$ , but since 1960 the population has declined by  $20\%$ . What is its population now?
18. If the shadow of a  $42$ -foot tall telephone pole measures  $15$  feet along the ground and at the same time a nearby tree casts a  $25$ -foot long shadow, how tall is the tree?

19. What is 24 divided by  $\frac{1}{3}$ ?

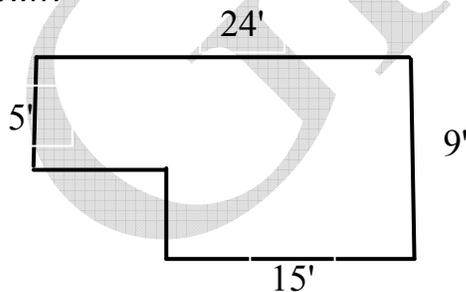
20. Mrs. Green watched her 4-year-old daughter add flour to a pancake mix by putting in  $\frac{1}{2}$  cup first, then  $\frac{1}{3}$  cup, then  $\frac{1}{4}$  cup and finally another  $\frac{1}{4}$  cup. The recipe called for 2 cups. How much more flour does Mrs. Green need to add?

21. A car travels 30 miles at 30 mph and then the next 30 miles at 60 mph. What is the average rate for the total trip?

22. Which 3-dimensional shape will be generated if a rectangle is rotated about the line segment that splits it in half as shown?



23. What is the area of the polygonal region shown?



24.  $224 - 36 \div 12 \times 8 + 36 = ?$

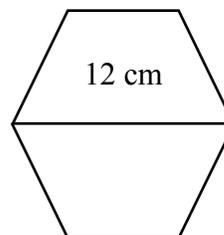
25. What is the sum of all prime numbers between 50 and 70?

26. A bag contains poker chips: 2 blue, 3 red, and 5 white. One chip is removed from the bag. What is the probability that it is not red?

27. Three 7th grade classes are taught by Ms. Bee, Ms. Dee, and Ms. Zee. Ms. Bee's class has 30 students of which 15 are boys; Ms. Dee's class had 24 students of which are 15 boys; and Ms. Zee's class has 25 of which 16 are boys. If one student is chosen at random from each of these three classes, what is the probability that all three will be boys?

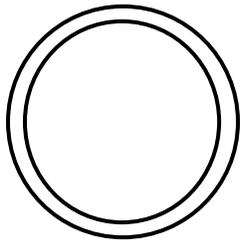
28. Two fair game dice are rolled and the sum of the spots on the two upper faces is computed. What is the probability that this sum will be less than or equal to 5?

29. A regular hexagon has a diameter of 12 cm. What does its perimeter measure?



30.  $(7^2 + 8^2 + 9^2 + 10^2 + 11^2 + 12^2) \div 43 = ?$

31. A ten-inch circular pizza has a central circular region of diameter 9 inches that is covered with topping. So there is a one-half-inch wide crust border. What percentage of the pizza is actually covered with topping?



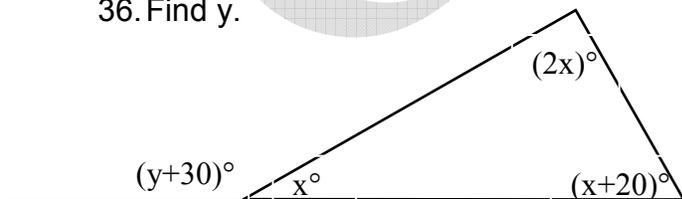
32.  $50 \times 347 \times 2 = ?$

33.  $(1)(759) + (2)(759) + (3)(759) + (4)(759) = ?$

34. Evaluate  $(v-x)(w-x)(x-x)(y-x)(z-x)$ , when  $v = 9$ ,  $w = 8$ ,  $x = 7$ ,  $y = 6$ , and  $z = 5$ .

35. On a mariner's compass  $0^\circ$  is due north and  $90^\circ$  is due east. How many degrees would correspond to SE (southeast)?

36. Find  $y$ .



37. What is the least common denominator for  $\frac{2}{3} + \frac{3}{4} + \frac{5}{6} + \frac{7}{8} + \frac{5}{12}$ ?

38. What is the greatest common divisor of 91, 98, and 77?



Exam Sheet  
Grade-8  
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Grade -8

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1. Find the product:  $64 \times 287$ .
2. Find the quotient:  $0.945 \div 0.27$ .
3. What does  $(3.87)^2$  equal?
4. Find the sum:
 

987	
346	
792	
<u>195</u>	
5. What does the following equal?  
 $-12 + 4 \div (-2) + (-6)(-2) - 3$
6. Find the sum of the solutions of  
 $|2x - 6| = 8$ .
7. For the mean of the following data to be 8, what must  $x$  be?  
 1, 1, 1, 2, 2, 3, 4,  $x$
8. If the area of a regular tennis court is 2808 sq. ft., how many square yards is it?
9. Simplify:  

$$28\left(\frac{6}{7}x - \frac{7}{4}y + \frac{3}{2}z\right) - 30\left(-\frac{7}{15}x + \frac{3}{10}y + \frac{4}{3}z\right)$$
10. The Candler Middle School Science Club raises \$316 to pay for tickets for a trip to Fernbank. All four of the club's advisors will go on the trip. Tickets are \$8.50 for adults and \$6.00 for students. How many students will be able to go on the trip?
11. Solve for  $x$ :  $2(3 - 5x) \leq -4(2x - 6)$ .
12. Evaluate  $\frac{x^3 - y^3}{x^2 + xy + y^2}$  when  $x = -3$  and  $y = -2$ .
13. Find the sum of the least common multiple of 24 and 32 and the greatest common factor of 24 and 32.
14. Find the product and write your answer in lowest terms:  $\frac{24}{110} \times \frac{75}{18}$ .
15. Find the quotient and write your answer in lowest terms:  $\frac{36}{65} \div \frac{24}{39}$ .
16. Solve for  $x$ :  $\frac{2x}{3} - \frac{1}{6} = \frac{3(3x-7)}{4}$ .
17. If you roll a pair of dice, what is the probability that you will have a sum less than 4?
18. A restaurant sells drinks in 3 sizes of cups: small, medium, and large. The small cup costs \$.95 and holds 9 ounces. The medium cup costs \$1.29 and holds 12 ounces. The large cup costs \$1.49 and holds 15 ounces. Which size cup costs the least per ounce?
19. 120 is 48% of what number?
20. 14 is what percent of 56?
21. The area of a trapezoid is 108 square units. If its bases are 8 units and 10 units, what is its height?
22. Circle M has circumference  $20\pi$  and circle N has circumference  $4\pi$ . How many times larger is the area of circle M than circle N?

23. The sides of triangle K are 6, 8, and 10. Triangle T is similar to triangle K. If the shortest side of triangle T is 12, what is the area of T?
24. Find the sum of the coordinates of the point of intersection of lines  $2x - 3y = 5$  and  $5x + 2y = 22$ .
25. At Chadwick's Diner Mary and Tom bought 3 hamburgers and 2 orders of French fries for \$11.05 before taxes. LaShonda and Thomas bought 2 hamburgers and 3 orders of French fries for \$9.45 before taxes. What is the price of one hamburger?
26. Is the point  $(-1, 2)$  on, above, or below the graph of the line  $y = -\frac{2}{3}x + \frac{4}{3}$ ?
27. The vertices of a triangle are  $(-1, 3)$ ,  $(0, 4)$  and  $(2, 6)$ . What is the perimeter of the triangle? Write your answer as a single term.
28. What is the sum of the distinct prime factors of 1,800?
29. Solve for x:  $2^{(x+4)} = 8^{(x-1)}$
30. The perimeter of a triangle is 24. If the sides of the triangle are  $x$ ,  $x + 2$ , and  $x + 4$ , what is the area of the triangle?
31. What is the sum of 28% of 280 and 46% of 370?
32. Find the quotient:  $\left(5\frac{5}{9}\right) \div \left(6\frac{2}{3}\right)$ .
34. What is the perimeter of an isosceles right triangle with a leg of length 3?
35. Express  $(\sqrt{2} + \sqrt{3})^2$  in simplified form.
36. What is the x-coordinate of the point whose y-coordinate is 16 that is on the line passing through  $(1, 2)$  whose slope is 3?
37. The degree measures of a quadrilateral are  $x$ ,  $x - 12$ ,  $x + 7$ , and  $3x - 37$ . What is the degree measure of the largest angle of the quadrilateral?