The CENTRE for EDUCATION in MATHEMATICS and COMPUTING

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Gauss Contest Grade 7
Problems

1. The value of $(4 \times 3) + 2$ is
   (A) 33 (B) 10 (C) 14 (D) 24 (E) 11

2. Which of the following numbers is closest to 100 on the number line?
   (A) 98 (B) 95 (C) 103 (D) 107 (E) 110

3. Five times a number equals one hundred. The number is
   (A) 50 (B) 10 (C) 15 (D) 25 (E) 20

4. The spinner shown is divided into 6 sections of equal size. What is the probability of landing on a section that contains the letter P using this spinner?

   (A) $\frac{3}{6}$ (B) $\frac{4}{6}$ (C) $\frac{5}{6}$ (D) $\frac{2}{6}$ (E) $\frac{1}{6}$

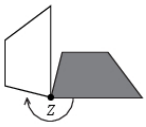
5. One scoop of fish food can feed 8 goldfish. How many goldfish can 4 scoops of fish food feed?
   (A) 12 (B) 16 (C) 8 (D) 64 (E) 32

6. Which of these fractions is equivalent to $\frac{15}{25}$?
   (A) $\frac{3}{4}$ (B) $\frac{2}{3}$ (C) $\frac{3}{5}$ (D) $\frac{1}{2}$ (E) $\frac{5}{7}$

7. How many positive two-digit whole numbers are divisible by 7?
   (A) 11 (B) 9 (C) 15 (D) 12 (E) 13

8. If $9210 - 9124 = 210 - \square$, the value represented by the $\square$ is
   (A) 296 (B) 210 (C) 186 (D) 124 (E) 24

9. A clockwise rotation around point Z (that is, a rotation in the direction of the arrow) transforms the shaded quadrilateral to the unshaded quadrilateral. The angle of rotation is approximately

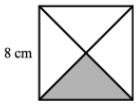


   (A) 180° (B) 270° (C) 360° (D) 45° (E) 135°

10. Which one of the following is equal to 17?
    (A) $3 - 4 \times 5 + 6$ (B) $3 \times 4 + 5 \div 6$ (C) $3 + 4 \times 5 - 6$
    (D) $3 \div 4 + 5 - 6$ (E) $3 \times 4 \div 5 + 6$

11. Consider the set $\{0.34, 0.304, 0.034, 0.43\}$. The sum of the smallest and largest numbers in the set is
    (A) 0.77 (B) 0.734 (C) 0.077 (D) 0.464 (E) 0.338

12. The diagonals have been drawn in the square shown. The area of the shaded region of the square is



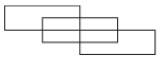
    (A) 4 cm^2 (B) 8 cm^2 (C) 16 cm^2 (D) 56 cm^2 (E) 64 cm^2

13. In the special square shown, the sum of the three numbers in each column equals the sum of the three numbers in each row. The value of x is

13	8	
14	x	10
9		

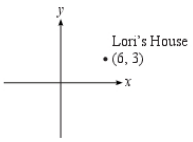
(A) 3 (B) 4 (C) 5 (D) 6 (E) 12

14. In the diagram shown, the number of rectangles of all sizes is



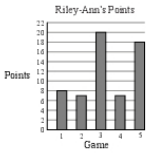
(A) 11 (B) 15 (C) 7 (D) 13 (E) 9

15. The diagram shows Lori's house located at $(6, 3)$. If Alex's house is located at $(-2, -4)$, what translation is needed to get from Lori's house to Alex's house?



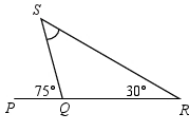
(A) 4 units left, 1 unit up (B) 8 units right, 7 units up
(C) 4 units left, 1 unit down (D) 8 units left, 7 units down
(E) 7 units right, 8 units down

16. The graph shows points scored by Riley-Ann in her first five basketball games. The difference between the mean and the median of the number of points that she scored is



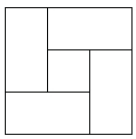
(A) 1 (B) 2 (C) 3 (D) 4 (E) 5

17. In the diagram shown, PQR is a straight line segment. The measure of $\angle QSR$ is



(A) 25° (B) 30° (C) 35° (D) 40° (E) 45°

18. In the figure shown, the outer square has an area of 9 cm^2, the inner square has an area of 1cm^2, and the four rectangles are identical. What is the perimeter of one of the four identical rectangles?



(A) 6 cm (B) 8 cm (C) 10 cm (D) 9 cm (E) 7 cm

19. Sarah's hand length is 20 cm. She measures the dimensions of her rectangular floor to be 18 by 22 hand lengths. Which of the following is the closest to the area of the floor?
(A) 160 000 cm^2 (B) 80 000 cm^2 (C) 200 000 cm^2
(D) 16 000 cm^2 (E) 20 000 cm^2

20. The product of three consecutive odd numbers is 9177. What is the sum of the numbers?
(A) 51 (B) 57 (C) 60 (D) 63 (E) 69

21. A bicycle at Store P costs \$200. The regular price of the same bicycle at Store Q is 15% more than it is at Store P. The bicycle is on sale at Store Q for 10% off of the regular price. What is the sale price of the bicycle at Store Q?

(A) \$230.00 (B) \$201.50 (C) \$199.00 (D) \$207.00 (E) \$210.00

22. Each face of a cube is painted with exactly one colour. What is the smallest number of colours needed to paint a cube so that no two faces that share an edge are the same colour?

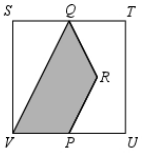
(A) 2 (B) 3 (C) 4 (D) 5 (E) 6

23. Two standard six-sided dice are tossed. One die is red and the other die is blue. What is the probability that the number appearing on the red die is greater than the number appearing on the blue die?

(A) $\frac{18}{36}$ (B) $\frac{25}{36}$ (C) $\frac{15}{36}$ (D) $\frac{12}{36}$ (E) $\frac{17}{36}$

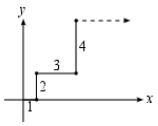
24. In the diagram shown,
    - $STUV$ is a square,
    - Q and P are the midpoints of ST and UV,
    - $PR = QR$, and
    - VQ is parallel to PR.

    What is the ratio of the shaded area to the unshaded area?



(A) 2 : 3 (B) 3 : 5 (C) 1 : 1 (D) 7 : 9 (E) 5 : 7

25. On a coordinate grid, Paul draws a line segment of length 1 from the origin to the right, stopping at $(1, 0)$. He then draws a line segment of length 2 up from this point, stopping at $(1, 2)$. He continues to draw line segments to the right and up, increasing the length of the line segment he draws by 1 each time. One of his line segments stops at the point $(529, 506)$. What is the endpoint of the next line segment that he draws?



(A) $(529, 552)$ (B) $(576, 506)$ (C) $(575, 506)$ (D) $(529, 576)$ (E) $(576, 552)$