The CENTRE for EDUCATION
in MATHEMATICS and COMPUTING

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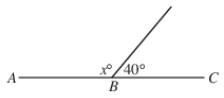
Gauss Contest Grade 7
Problems

1. The value of $(8 \times 4) + 3$ is
(A) 96 (B) 15 (C) 56 (D) 35 (E) 28

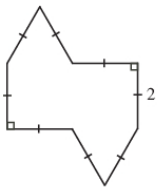
2. In the diagram, ABC is a straight line. The value of x is



(A) 100 (B) 140 (C) 50 (D) 120 (E) 320

3. Mikhail has \$10 000 in \$50 bills. How many \$50 bills does he have?
(A) 1000 (B) 200 (C) 1250 (D) 500 (E) 2000

4. What is the perimeter of the figure shown?



(A) 16 (B) 10 (C) 8 (D) 14 (E) 18

5. The value of $\frac{2}{5} + \frac{1}{3}$ is
(A) $\frac{3}{8}$ (B) $\frac{2}{15}$ (C) $\frac{11}{15}$ (D) $\frac{13}{15}$ (E) $\frac{3}{15}$

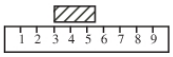
6. The value of $6 \times 100,000 + 8 \times 1000 + 6 \times 100 + 7 \times 1$ is
(A) 6867 (B) 608 067 (C) 608 607 (D) 6 008 607 (E) 600 000 867

7. If $3 + 5x = 28$, the value of x is
(A) 20 (B) 3.5 (C) 5 (D) 6.2 (E) 125

8. The value of $9^2 - \sqrt{9}$ is
(A) 0 (B) 6 (C) 15 (D) 72 (E) 78

9. There are 2 red, 5 yellow and 4 blue balls in a bag. If a ball is chosen at random from the bag, without looking, the probability of choosing a yellow ball is
(A) $\frac{2}{11}$ (B) $\frac{5}{11}$ (C) $\frac{4}{11}$ (D) $\frac{6}{11}$ (E) $\frac{7}{11}$

10. A small block is placed along a 10 cm ruler. Which of the following is closest to the length of the block?



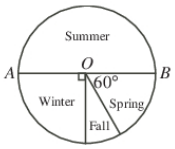
(A) 0.24 cm (B) 4.4 cm (C) 2.4 cm (D) 3 cm (E) 24 cm

11. The cost, before taxes, of the latest CD released by The Magic Squares is \$14.99. If the sales tax is 15%, how much does it cost to buy this CD, including tax?
(A) \$17.24 (B) \$15.14 (C) \$2.25 (D) \$16.49 (E) \$16.50

12. A rectangular pool is 6 m wide, 12 m long and 4 m deep. If the pool is half full of water, what is the volume of water in the pool?
(A) 100 m^3 (B) 288 m^3 (C) 36 m^3 (D) 22 m^3 (E) 144 m^3

13. What number must be added to 8 to give the result -5?
(A) 3 (B) -3 (C) 13 (D) -13 (E) -10

14. In the diagram, O is the centre of the circle, AOB is a diameter, and the circle graph illustrates the favourite season of 600 students. How many of the students surveyed chose Fall as their favourite season?



(A) 100 (B) 50 (C) 360 (D) 150 (E) 75

15. Harry charges \$4 to babysit for the first hour. For each additional hour, he charges 50% more than he did for the previous hour. How much money in total would Harry earn for 4 hours of babysitting?
(A) \$16.00 (B) \$19.00 (C) \$32.50 (D) \$13.50 (E) \$28.00

16. A fraction is equivalent to $\frac{5}{8}$. Its denominator and numerator add up to 91. What is the difference between the denominator and numerator of this fraction?
(A) 21 (B) 3 (C) 33 (D) 13 (E) 19

17. Bogdan needs to measure the area of a rectangular carpet. However, he does not have a ruler, so he uses a shoe instead. He finds that the shoe fits exactly 15 times along one edge of the carpet and 10 times along another. He later measures the shoe and finds that it is 28 cm long. What is the area of the carpet?
(A) 150 cm^2 (B) 4200 cm^2 (C) 22, 500 cm^2
(D) 630, 000 cm^2 (E) 117, 600 cm^2

18. Keiko and Leah run on a track that is 150 m around. It takes Keiko 120 seconds to run 3 times around the track, and it takes Leah 160 seconds to run 5 times around the track. Who is the faster runner and at approximately what speed does she run?
(A) Keiko, 3.75 m/s (B) Keiko, 2.4 m/s (C) Leah, 3.3 m/s
(D) Leah, 4.69 m/s (E) Leah, 3.75 m/s

19. Which of the following is closest to one million (10^6) seconds?
(A) 1 day (B) 10 days (C) 100 days (D) 1 year (E) 10 years

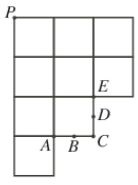
20. The letter P is written in a 2×2 grid of squares as shown:  A combination of rotations about the centre of the grid and reflections in the two lines through the centre achieves the result: 

When the same combination of rotations and reflect is applied to  , the result is

(A)  (B)  (C)  (D)  (E) 

21. Gail is a server at a restaurant. On Saturday, Gail gets up at 6:30 a.m., starts work at x a.m. and finishes at x p.m. How long does Gail work on Saturday?
(A) $24 - 2x$ hours (B) $12 - x$ hours (C) $2x$ hours
(D) 0 hours (E) 12 hours

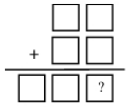
22. In the diagram, a shape is formed using unit squares, with B the midpoint of AC and D the midpoint of CE. The line which passes through P and cuts the area of the shape into two pieces of equal area also passes through the point



(A) A (B) B (C) C (D) D (E) E

23. In the addition of two 2-digit numbers, each blank space, including those in the

answer, is to be filled with one of the digits 0, 1, 2, 3, 4, 5, 6, each used exactly once. The units digit of the sum is



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

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24. A triangle can be formed having side lengths 4, 5 and 8. It is impossible, however, to construct a triangle with side lengths 4, 5 and 10. Using the side lengths 2, 3, 5, 7 and 11, how many different triangles *with exactly two equal sides* can be formed?
(A) 8 (B) 5 (C) 20 (D) 10 (E) 14

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25. Five students wrote a quiz with a maximum score of 50. The scores of four of the students were 42, 43, 46, and 49. The score of the fifth student was N. The average (mean) of the five students' scores was the same as the median of the five students' scores. The number of values of N which are possible is
(A) 3 (B) 4 (C) 1 (D) 0 (E) 2
