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

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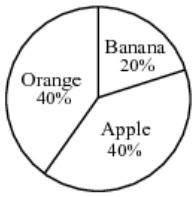
2. In the diagram, the pie chart shows the results of a survey asking students to choose their favourite fruit. 100 students were surveyed. How many students chose banana?



(A) 40 (B) 80 (C) 100 (D) 20 (E) 60

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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

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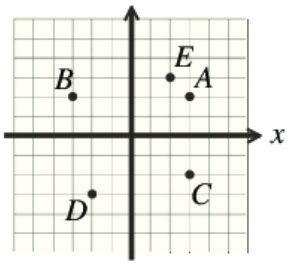
4. In the diagram, the point with coordinates $(-2, -3)$ is located at



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

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5. Which of the following is closest to 5 cm?
   (A) The length of a full size school bus
   (B) The height of a picnic table
   (C) The height of an elephant
   (D) The length of your foot
   (E) The length of your thumb

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6. At a class party, each student randomly selects a wrapped prize from a bag. The prizes include books and calculators. There are 27 prizes in the bag. Meghan is the first to choose a prize. If the probability of Meghan choosing a book for her prize is $\frac{2}{3}$, how many books are in the bag?
   (A) 15 (B) 9 (C) 21 (D) 7 (E) 18

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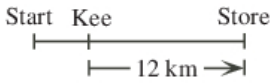
7. On a map of Nunavut, a length of 1 centimetre measured on the map represents a

real distance of 60 kilometres. What length on the map represents a real distance of 540 kilometres?

(A) 9 cm (B) 90 cm (C) 0.09 cm (D) 0.11 cm (E) 5.4 cm

8. Ahmed is going to the store. One quarter of the way to the store, he stops to talk with Kee. He then continues for 12 km and reaches the store. How many kilometres does he travel altogether?

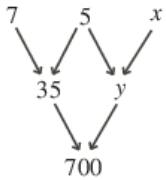


(A) 15 (B) 16 (C) 24 (D) 48 (E) 20

9. The sum of three consecutive integers is 153. The largest of these three integers is

(A) 52 (B) 50 (C) 53 (D) 54 (E) 51

10. Each number below the top row is the product of the number to the right and the number to the left in the row immediately above it. What is the value of x?

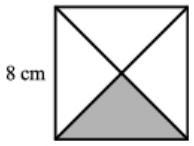


(A) 8 (B) 4 (C) 7 (D) 5 (E) 6

11. A cube has exactly six faces and twelve edges. How many vertices does a cube have?

(A) 4 (B) 5 (C) 6 (D) 7 (E) 8

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. What is the largest amount of postage in cents that *cannot* be made using only 3 cent and 5 cent stamps?

(A) 7 (B) 13 (C) 4 (D) 8 (E) 9

14. A box contains 15 red, 20 blue, and 16 green jelly beans. Jack first chooses a green jelly bean and eats it. Then he chooses a blue jelly bean and eats it. If each of the remaining jelly beans is equally likely to be chosen, what is the probability that Jack chooses a red jelly bean next?

(A) $\frac{15}{31}$ (B) $\frac{34}{49}$ (C) $\frac{15}{49}$ (D) $\frac{2}{7}$ (E) $\frac{1}{15}$

15. If snow falls at a rate of 1 mm every 6 minutes, then how many *hours* will it take for 1 m of snow to fall?
(A) 33 (B) 60 (C) 26 (D) 10 (E) 100

16. You have exactly \$4.40 (440¢) in quarters (25¢), dimes (10¢), and nickels (5¢). You have the same number of each type of coin. How many dimes do you have?
(A) 20 (B) 11 (C) 10 (D) 12 (E) 4

17. The mean (average) of the four integers $78, 83, 82$, and x is 80. Which one of the following statements is true?
(A) x is 2 greater than the mean
(B) x is 1 less than the mean
(C) x is 2 less than the mean
(D) x is 3 less than the mean
(E) x is equal to the mean

18. A rectangle has length x and width y. A triangle has base 16 and height x. If the area of the rectangle is equal to the area of the triangle, then the value of y is
(A) 16 (B) 4 (C) 8 (D) 12 (E) 32

19. A special six-sided die is rolled. The probability of rolling a number that is a multiple of three is $\frac{1}{2}$. The probability of rolling an even number is $\frac{1}{3}$. A possibility for the numbers on the die is
(A) $1, 2, 3, 5, 5, 6$ (B) $1, 2, 3, 3, 5, 6$ (C) $1, 2, 3, 4, 6, 6$
(D) $1, 2, 3, 3, 4, 6$ (E) $2, 3, 3, 3, 5, 6$

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) 

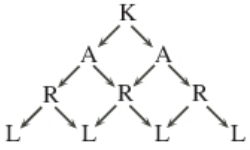
(B) 

(C) 

(D) 

(E) 

21. In the diagram, how many paths can be taken to spell "KARL"?



(A) 4 (B) 16 (C) 6 (D) 8 (E) 14

22. The average of four different positive whole numbers is 4. If the difference between the largest and smallest of these numbers is as large as possible, what is the average of the other two numbers?

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

23. The number N is the product of all positive odd integers from 1 to 99 that do not end in the digit 5. That is,
$N = 1 \times 3 \times 7 \times 9 \times 11 \times 13 \times 17 \times 19 \times \cdots \times 91 \times 93 \times 97 \times 99$. The units digit of N is
(A) 1 (B) 3 (C) 5 (D) 7 (E) 9

24. How many of the five numbers $101, 148, 200, 512, 621$ cannot be expressed as the sum of two or more consecutive positive integers?
(A) 0 (B) 1 (C) 2 (D) 3 (E) 4

25. How many different combinations of pennies, nickels, dimes and quarters use 48 coins to total \$1.00?
(A) 3 (B) 4 (C) 5 (D) 6 (E) 8