Part A

1. What is the value of $\dfrac{1}{\frac{1}{2}+\frac{2}{3}}$?

   (A) $\frac{3}{5}$ (B) $\frac{6}{7}$ (C) $\frac{7}{6}$ (D) $\frac{5}{3}$ (E) 3

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2. This year, I grew by 10%. Last year, I grew by 20%. By how much did I grow in the two years?

   (A) 15% (B) 25% (C) 30% (D) 32% (E) None of these

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3. When Marc arrives at a gas station, the gauge on the gasoline tank reads $\frac{1}{8}$ of the total capacity of the tank. After purchasing 25 litres of gasoline, the gauge reads $\frac{5}{8}$ full. What is the capacity, in litres, of the gas tank?

   (A) 40 (B) 45 (C) 50 (D) 60 (E) None of these

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4. In a group of people, 29 persons have either blue eyes or brown hair. If 18 persons have brown hair and 21 persons have blue eyes, how many persons have both brown hair and blue eyes?

   (A) 3 (B) 8 (C) 9 (D) 10 (E) 18

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5. The largest possible product of two positive integers whose sum is 9 is

   (A) 8 (B) 9 (C) 14 (D) 20 (E) 24

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6. How many different 4 digit numbers can be made by ordering the digits 1, 2, 3, 3?

   (A) 4 (B) 6 (C) 12 (D) 24 (E) None of these

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7. One morning, a snail decides to climb a wall 10 metres in height. During the day, the snail can climb 3 meters but falls back 2 meters at night. How many days will it take for the snail to climb the wall?

(A) 7 (B) 8 (C) 9 (D) 10 (E) None of these

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8. You make a purchase and pay with Canadian coins. If you give the sales clerk the smallest number of coins possible, which of the following amounts would require the most coins to pay for?

(A) 24¢ (B) 44¢ (C) 48¢ (D) 67¢ (E) 96¢

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9. François is playing on a ladder. He starts out on the middle step. He then goes up 5 steps, down 10, up another 7 and up 9 more steps to the top. How many steps are there on the ladder?

(A) 9 (B) 10 (C) 11 (D) 22 (E) 23

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10. The word EXAMINATION must be centred on a line containing 79 spaces. If the typist wishes to insert exactly one space between each pair of letters in the word, how many spaces must be inserted in front of the word?

(A) 28 (B) 29 (C) 30 (D) 34 (E) 58

Part B

11. Suppose that the operation * is defined by a*b = 3a-2b. What is the result of (4*2)*7?

(A) 8 (B) 10 (C) 12 (D) 56 (E) None of these

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12. How many of the integers between 31 and 131 are divisible by 7 but not divisible by 6?

(A) 11 (B) 12 (C) 13 (D) 14 (E) 15

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13. Alphonse has three times as many marbles as Beatrice. If Alphonse would give 15 of his marbles to Beatrice then he would have twice as many marbles as she would have. How many marbles must Alphonse give to Beatrice so that they each have the same number?

(A) 30 (B) 45 (C) 60 (D) 90 (E) Not enough Information

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14. For a party, Justin buys a pizza and cuts it into 24 pieces. Marc eats $\frac{1}{6}$ of the pizza and Claudine eats $\frac{1}{4}$ of what remains. After both of them have eaten, Sylvie eats $\frac{1}{3}$ of the rest. Justin gets to eat what is left over. What fraction of the pizza did Justin not eat?

(A) $\frac{1}{2}$ (B) $\frac{5}{12}$ (C) $\frac{7}{12}$ (D) $\frac{2}{3}$ (E) None of these

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15. Determine the value of $\frac{x+y}{x-y}$ where $x=\frac{3}{4}$ and $y=\frac{2}{3}$.

(A) $\frac{5}{3}$ (B) 5 (C) 6 (D) 17 (E) None of these

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16. Which of the following is the largest?

(A) 10^3 (B) 4^5 (C) 2^9 (D) 3^5 (E) 5^4

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17. I have a number such that if I multiply the number by 4 and subtract 12, I get twice as much as when I first subtract 12 and then multiply by 4. The sum of the digits of my number is

(A) 3 (B) 4 (C) 5 (D) 7 (E) 9

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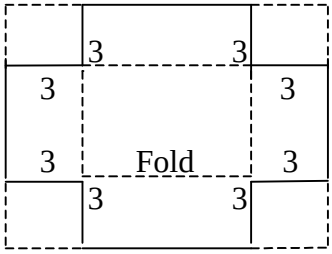
18. A company is designing a package for its product. One part of the package is to be an open box made from a square piece of aluminium by cutting out a 3 cm square from each corner and folding up the sides (see Figure). The box is to contain 75 cm^3. What are the dimensions in cm x cm of the square piece of aluminium that must be used?



(A) 6×6 (B) 9×9 (C) 10×10 (D) 11×11 (E) None of these

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19. In the sequence 1, 3, 3, 3, 5, 5, 5, 5, 5, 7, 7, … the 100th number is

(A) 10 (B) 19 (C) 20 (D) 21 (E) None of these

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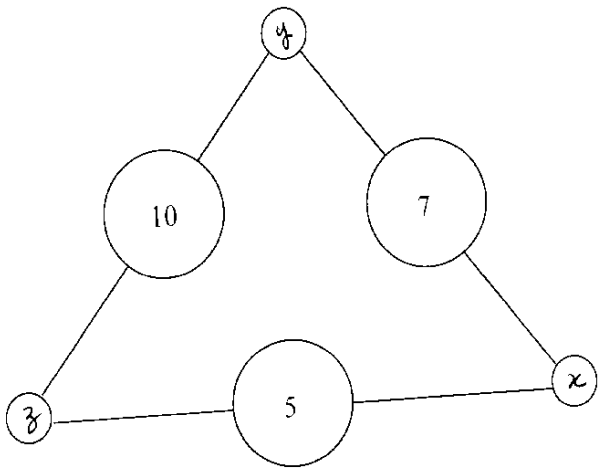
20. I noticed that when I interchanged the digits of my father's age, I got my own age. When I was born, his age was between twenty and thirty years. What was my father's age when I was born?

(A) 20 (B) 26 (C) 27 (D) 30 (E) None of these

Part C

21. The numbers in the larger circles are obtained by adding the two numbers in the smaller circles attached to each larger circle. Determine the sum of the numbers in the small circles.



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(A) 9 (B) 11 (C) 13 (D) 20 (E) None of these

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22. What is the 2001st number in the sequence: 2, 5, 8, 11,...?

(A) 5996 (B) 5999 (C) 6000 (D) 6001 (E) 6002

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23. Starting with the number 2, Roman writes down, in order, all of the integers which are not perfect squares. What is the 100^{th} number he writes down?

(A) 107 (B) 109 (C) 110 (D) 111 (E) None of these

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24. How many digits are needed to write all of the integers from 1 to 1000 inclusive? For example, to write the numbers from 1 to 10 inclusive, one would need 11 digits.

(A) 2889 (B) 2892 (C) 2893 (D) 2899 (E) 2989

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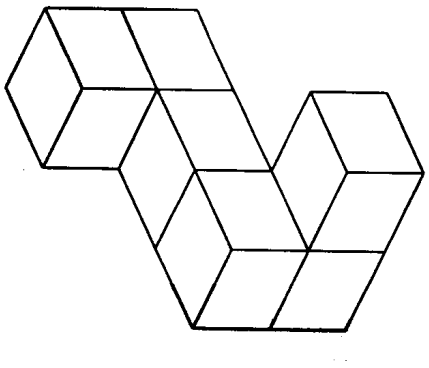
25. How many triangles are contained in this figure?

(A) 16 (B) 17 (C) 25 (D) 26 (E) 27

26. What is the surface area in cm^2 of the solid figure shown if the cubes measure 1 cm on each side?



(A) 24 (B) 25 (C) 29 (D) 30 (E) None of these