
Part A

1. While doing a calculation, Fred made a mistake. He divided by 11 when he should have multiplied by 11. His incorrect answer was 11. What is the correct answer?

(A) 1 (B) 11 (C) 121 (D) 1 331 (E) 14 641

2. What is $\sqrt{144} - \sqrt{81}$?

(A) $\sqrt{12} - \sqrt{9}$ (B) 3 (C) 6 (D) $\sqrt{63}$ (E) 8

3. A truck is half full of sand. Another 2 cubic meters of sand is put into the truck making the truck two thirds full. How many cubic meters of sand can the truck hold?

(A) 4 (B) 6 (C) 8 (D) 10 (E) 12

4. Which of the five numbers below is the average of the other four?

(A) 102 (B) 108 (C) 109 (D) 110 (E) 111

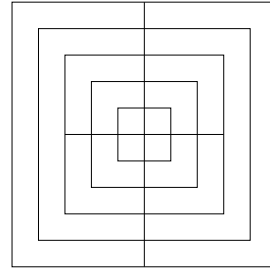
5. Farmer David plans to build a rectangular fence to keep deer out of his blueberry field. There is to be a fence post at each corner with additional posts every 3 m between the corners. How many fence posts will David require if his field is 60 m wide and 72 m long?

(A) 88 (B) 92 (C) 96 (D) 98 (E) 102

6. Harry is fourteen years old. His age is one third of his father's age. In how many years will Harry's age be one half of his father's age?

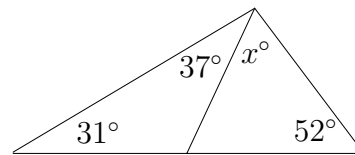
(A) 10 (B) 14 (C) 21 (D) 24 (E) 28

7. How many squares are in the figure?



- (A) 13 (B) 15 (C) 17 (D) 19 (E) 21

8. For this diagram, what is the value of x ?



- (A) 60 (B) 64 (C) 68 (D) 72 (E) 76

9. Maureen needs to buy food for her dog Rusty. Rusty's favorite dog food is Chewy Bones. Chewy Bones are available in bags of five Bones and bags of seven Bones.

If Maureen buys 100 Bones, how many seven Bone bags must she buy so that the total number of bags is as small as possible?

- (A) 10 (B) 11 (C) 12 (D) 13 (E) 14

10. Ahcène thought of a number. He added 3 to it, and then divided the result by 5. Finally, Ahcène subtracted 4 to obtain his final answer. If x represents the number Ahcène thought of, which expression does *not* represent how he obtained his final answer?

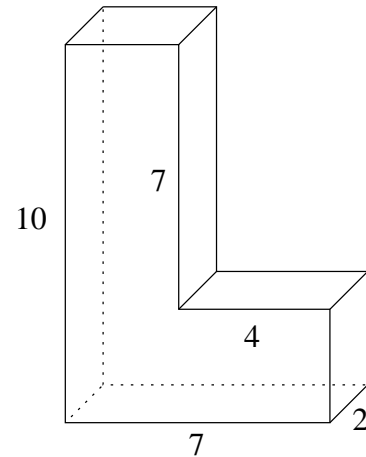
- (A) $\frac{x+3}{5} - 4$ (B) $\frac{x}{5} + \frac{3}{5} - 4$ (C) $\frac{x}{5} - \frac{17}{5}$
- (D) $\frac{x-17}{5}$ (E) $x - \frac{17}{5}$

Part B

11. The value of $\frac{3^4 - 2^4}{2^6 + 6^0}$ is

- (A) $\frac{1}{65}$ (B) $\frac{1}{64}$ (C) $\frac{4}{13}$ (D) $\frac{13}{14}$ (E) 1

12. What is the volume (in cubic units) of this solid?



- (A) 84 (B) 98 (C) 116 (D) 126 (E) 140

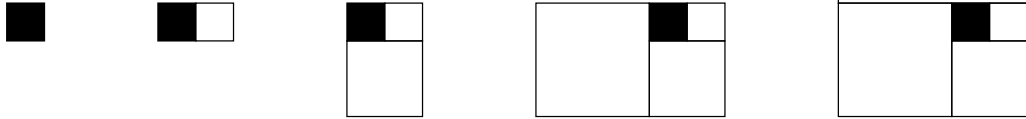
13. If three distinct lines are drawn on paper, there are at most three points where two or more lines cross (called crossing points). If four distinct lines are drawn, there are at most six crossing points. What is the maximum number of crossing points if seven distinct lines are drawn?

- (A) 15 (B) 18 (C) 21 (D) 24 (E) 27

14. The scale on a map reads 1 : 300 000. On the map, two cities are 12 cm apart. What is the actual distance between the two cities?

- (A) 3.6 km (B) 36 km (C) 360 km (D) 3 600 km (E) 36 000 km

15. The shaded square has area 1 cm^2 . Squares are added on as shown in the figures. What is the total area of the fifth figure?



- (A) 26 cm^2 (B) 40 cm^2 (C) 52 cm^2 (D) 60 cm^2 (E) 80 cm^2

16. The number that is half way between $\frac{1}{5}$ and $\frac{3}{7}$ is

- (A) $\frac{1}{6}$ (B) $\frac{8}{35}$ (C) $\frac{2}{7}$ (D) $\frac{11}{35}$ (E) $\frac{1}{3}$

17. Two opposite sides of a square are increased in length by 20% while the other two sides are decreased in length by 2 cm. The area of the new rectangle is the same as that of the original square. What is the side length of the original square?

- (A) 5 cm (B) 8 cm (C) 10 cm (D) 12 cm (E) 15 cm

18. In a variant of Sudoku, the objective is to fill in a 4×4 grid so that each column, each row, and each of the four 2×2 boxes contains each of the digits 1, 2, 3, and 4.

What is the value of $\frac{X}{Y}$?

1		X	
	Y		
	2		
			3

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

19. X and Y are whole numbers neither of which is divisible by 10. If $X > Y$ and the product of X and Y equals 20 000, what is the value of $X - Y$?

(A) 437 (B) 529 (C) 539 (D) 593 (E) 657

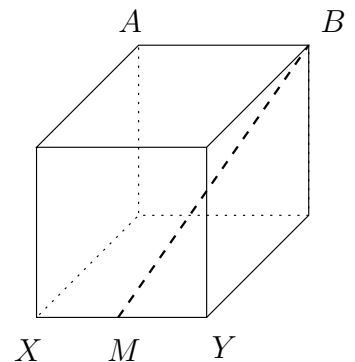
20. In downtown Fredericton there is an old railway bridge crossing the Saint John River. It is now a walking bridge, part of the Trans Canada Trail. The bridge is 581 m long.

At noon, Daryl starts walking from one end of the bridge, and Paul starts walking from the other end of the bridge. Daryl walks at 3 km/h, and Paul walks at 4 km/h. Of the times below, which is closest to the amount of time from when they start walking to when they meet?

(A) 3 min (B) 3 min 30 sec (C) 4 min (D) 4 min 30 sec (E) 5 min

Part C

21. On the cube shown, AB and XY are opposite edges. M is the midpoint of XY . If each side of the cube has length 2 cm, what is the length of BM in cm?



(A) $\sqrt{3}$ (B) $\sqrt{5}$ (C) $\sqrt{8}$ (D) 3 (E) 5

22. How many different six letter words can be made using two X s, two Y s, and two Z s? For example, XYXZZY is such a word.

(A) 48 (B) 64 (C) 84 (D) 90 (E) 120

23. A box contains 4 red pencils, 5 blue pencils and 6 green pencils. Mai reaches in and takes two pencils.

What is the probability that both pencils are blue?

- (A) $\frac{1}{21}$ (B) $\frac{2}{21}$ (C) $\frac{2}{15}$ (D) $\frac{1}{3}$ (E) $\frac{2}{3}$

24. Which of the following times is the first time after 10:30:00 that the minute and hour hands of my (12 hour) circular clock form an angle less than 90° ?

- (A) 10:37:30 (B) 10:38:00 (C) 10:38:30 (D) 10:39:00 (E) 10:39:30

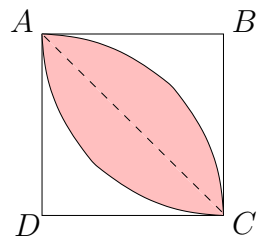
Note: Standard notation for time is hh:mm:ss

25. At Timmy's cafe, to buy one sandwich, two cups of coffee, and three doughnuts costs \$8.50. One sandwich, one cup of coffee and one doughnut costs \$6.00.

How much does it cost to buy three sandwiches, two cups of coffee and one doughnut?

- (A) \$12.00 (B) \$14.25 (C) \$15.50 (D) \$16.25 (E) \$17.50

26. In the diagram, $ABCD$ is a square with side length 1. Circular arcs of radius 1 are drawn with centers B and D . What is the area of the shaded region?



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