

Part A

1. The value of $\frac{7}{8} - \frac{3}{4} + \frac{1}{2}$ is

- (A) $\frac{5}{10}$ (B) $\frac{5}{8}$ (C) $\frac{5}{6}$ (D) $\frac{5}{4}$ (E) $\frac{5}{2}$

2. 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

3. What is $\sqrt{81} - \sqrt{36}$?

- (A) $\sqrt{9} - \sqrt{6}$ (B) 3 (C) 6 (D) $\sqrt{45}$ (E) 45

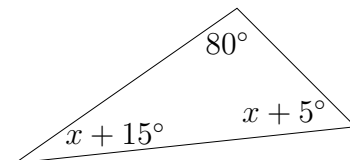
4. Which of the 5 numbers below is the average of the other 4 numbers?

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

5. How many of the numbers 3,5,7,13,15,17,21,42 are divisors of 210?

- (A) 3 (B) 4 (C) 5 (D) 6 (E) 7

6. For the triangle shown, what is the value of x ?



- (A) 30° (B) 40° (C) 70° (D) 100° (E) 130°

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7. 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 Ahcène 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) $x - \frac{17}{5}$

8. 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 five distinct lines are drawn?

(A) 8 (B) 9 (C) 10 (D) 11 (E) 12

9. Farmer David plans to build a fence to keep deer out of his rectangular 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

10. 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?

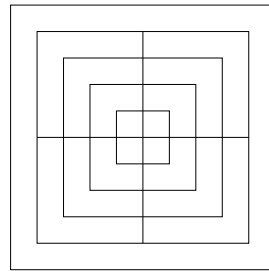
(A) 10 (B) 14 (C) 21 (D) 24 (E) 28

Part B

11. Red candies costs 5 cents each. Blue candies cost 7 cents each. Green candies cost 14 cents each. Alice spent 55 cents buying some candy of each colour. How many red candies did Alice buy?

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

12. How many squares are in the figure?



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

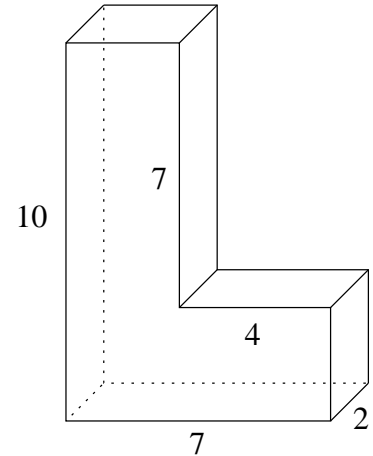
13. A truck is half full of sand. Another 2 cubic meters of sand is put into the truck making the truck two thirds full. How many cubic meters of sand can the truck hold?

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

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

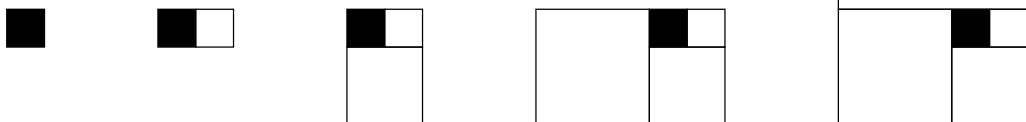


- (A) 84 (B) 98 (C) 116 (D) 126 (E) 140

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

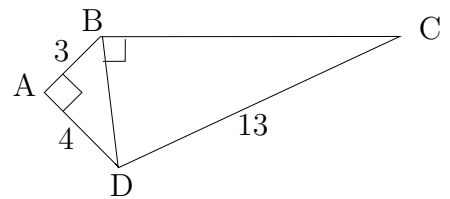
- (A) $\frac{1}{6}$ (B) $\frac{8}{35}$ (C) $\frac{2}{7}$ (D) $\frac{11}{35}$ (E) $\frac{1}{3}$

17. 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

18. In the quadrilateral shown, angles BAD and CBD are 90° . Also, $AD=4$, $AB=3$ and $DC=13$. What is the length of BC ?



- (A) 8 (B) 9 (C) 10 (D) 11 (E) 12

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19. Two opposite sides of a square are increased in length by 50% while the other two sides are decreased in length by 20 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) 20 cm (B) 30 cm (C) 40 cm (D) 60 cm (E) 80 cm

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.

Barry jogs across the bridge at 7km/h. Which length of time below is closest to the time Barry takes to cross the bridge?

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

Part C

21. A palindromic number is a number that reads the same forwards and backwards. For example, 12321 is a five digit palindromic number and 567765 is a six digit palindromic number. How many *four* digit palindromic numbers are there?

(A) 90 (B) 91 (C) 95 (D) 99 (E) 101

22. 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 $X - Y$?

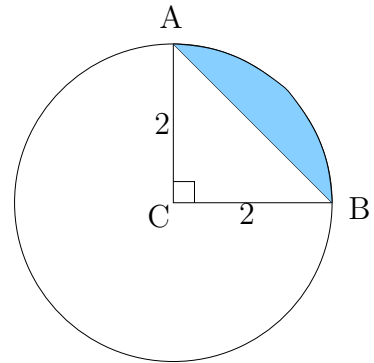
(A) 437 (B) 529 (C) 539 (D) 593 (E) 657

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

What is the probability that both pencils are red?

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

24. In the diagram, the circle has radius 2 cm and angle ACB is 90° . What is the area (in cm^2) of the shaded region?



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

25. Of the following times, which is the first time after 11:00:00 that the minute and hour hands of my (12 hour) circular clock form an angle greater than 90° ?

- (A) 11:10:00 (B) 11:10:30 (C) 11:11:00 (D) 11:11:30 (E) 11:12:00

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

26. 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) \$12.75 (B) \$13.50 (C) \$14.25 (D) \$15.50 (E) \$16.25