

Question 1

How many letters of the word MATHEMATICS do not have any lines of symmetry?

- A. 0 B. 1 C. 2 D. 3 E. 4

Question 2

Nadiya is baking a cake. The recipe says that the cake should be baked in the oven for 1 hour and 35 minutes. She puts the cake in the oven at 11:40 am. At what time will the cake be cooked?

- A. 12:15 pm B. 12:40 pm C. 1:05 pm D. 1:15 pm E. 2:15 pm

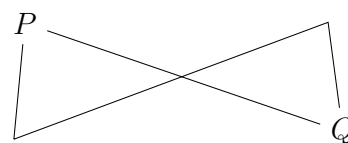
Question 3

What is the value of $\frac{12,345}{1 + 2 + 3 + 4 + 5}$?

- A. 1 B. 8 C. 678 D. 823 E. 12359

Question 4

A ladybird has landed at point P on Sam's bow-tie. If it travels only along the edges of the bow-tie, but cannot travel along any edge more than once, how many different ways are there for it to get from P to Q?



- A. 1 B. 2 C. 3 D. 4 E. 5

Question 5

What is the value of $201 \times 7 - 7 \times 102$?

- A. 142800 B. 793 C. 693 D. 607 E. 0

Question 6

Which of these fractions is nearest to 1?

- A. $\frac{12}{23}$ B. $\frac{23}{34}$ C. $\frac{34}{45}$ D. $\frac{45}{56}$ E. $\frac{56}{67}$

Question 7

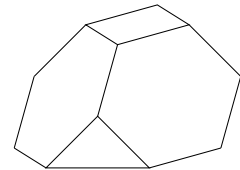
The lightest seeds in the world are probably those of the Creeping Lady's Orchid, 500,000 of which would weigh one gram. How many millions of these seeds weigh one kilogram?

- A. 2 B. 200 C. 500 D. 5000 E. 1,000,000

Question 8

A solid oblong-based pyramid has all of its corners cut off, as shown. How many edges does the resulting shape have?

- A. 8 B. 13 C. 15 D. 20 E. 24



Question 9

In Shakespeare's play *As You Like It*, Rosalind speaks to Orlando about "He that will divide a minute into a thousand parts." How many seconds would this be?

- A. 0.24 B. 0.6 C. 0.024 D. 0.06 E. 0.006

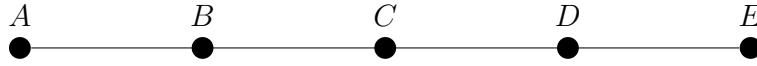
Question 10

In the expression $1 \square 2 \square 3 \square 4$, each \square is to be replaced by either $+$ or \times . What is the largest value of all the expressions that can be obtained in this way?

- A. 10 B. 14 C. 15 D. 24 E. 25

Question 11

The diagram shows a rod with five equally spaced points A , B , C , D , and E marked on it. The rod is rotated three times through 180° , first about A , then about B , and finally about E . Which point finishes in the same position as it was at the start?



- A. C B. B C. E D. D E. A

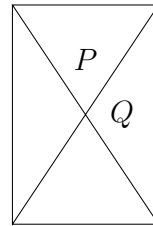
Question 12

The White Rabbit has an appointment to see the Red Queen at 4:00 pm every day apart from weekends. On Monday, he arrives sixteen minutes late. Each day after that he hurries more and more and so manages to halve the amount of time that he arrives late each day. On what day of the week does he arrive just fifteen seconds late?

- A. Monday B. Tuesday C. Wednesday D. Thursday E. Friday

Question 13

A rectangle is split into triangles by drawing in its diagonals. What is the ratio of the area of triangle P to the area of triangle Q ?



- A. $1 : 1$ B. $1 : 2$ C. $2 : 1$ D. $2 : 3$ E. depends on side lengths

Question 14

The Kings of Clubs, Diamonds, Hearts, and Spades, and their respective Queens, are having an arm wrestling competition. Everyone must wrestle everyone else, except that no King will wrestle his own Queen. How many wrestling bouts are there?

- A. 12 B. 16 C. 24 D. 28 E. 64

Question 15

Which of the following is divisible by all of the integers from 1 to 10 inclusive?

- A. 23×34 B. 34×45 C. 45×56 D. 56×67 E. 67×78

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Question 16

Exactly one of these statements is correct. Which one?

A. $44^2 + 77^2 = 4477$ B. $55^2 + 66^2 = 5566$ C. $66^2 + 55^2 = 6655$ D. $88^2 + 33^2 = 8833$

E. $99^2 + 22^2 = 9922$

Question 17

What is half of 1.01?

A. 5.5 B. 0.55 C. 0.505 D. 0.5005 E. 0.055

Question 18

In my row in the theatre, the seats are numbered consecutively from T1 to T50. I am sitting in seat T17 and you are sitting in seat T39. How many seats are there between us?

A. 23 B. 22 C. 21 D. 20 E. 19

Question 19

In January 1859, an eight-year old boy dropped a newly hatched eel into a well in Sweden (apparently in order to keep the water free of insects). The eel, named Ale, finally died in August 2014. How many years old was Ale when it died?

A. 135 B. 145 C. 155 D. 165 E. 175

Question 20

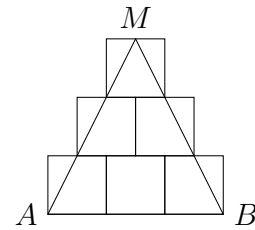
What is the value of $\frac{1}{25} + 0.25$?

A. 0.29 B. 0.3 C. 0.35 D. 0.50 E. 0.65

Question 21

Each square in the figure is 1 unit by 1 unit. What is the area of the triangle ABM (in square units)?

- A. 4 B. 4.5 C. 5 D. 5.5 E. 6



Question 22

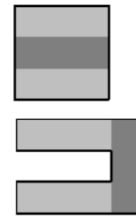
Peter Piper picked a peck of pickled peppers. 1 peck = $\frac{1}{4}$ bushel and 1 bushel = $\frac{1}{9}$ barrel. How many more pecks must Peter Piper pick to fill a barrel?

- A. 12 B. 13 C. 34 D. 35 E. 36

Question 23

A square is divided into three congruent rectangles. The middle rectangle is removed and replaced on the side of the original square to form an octagon as shown. What is the ratio of the length of the perimeter of the square to the length of the perimeter of the octagon?

- A. 3 : 5 B. 2 : 3 C. 5 : 8 D. 1 : 2 E. 1 : 1



Question 24

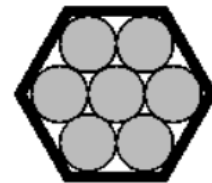
Which of the following is the longest period of time?

- A. 3002 hours B. 125 days C. $17\frac{1}{2}$ weeks D. 4 months E. $\frac{1}{3}$ of a year

Question 25

The diagram shows seven identical coins which fit exactly inside a wooden frame. As a result each coin is prevented from sliding. What is the largest number of coins that may be removed one by one so that, at each stage, each remaining coin is still unable to slide?

- A. 0 B. 1 C. 2 D. 3 E. 4



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Question 26

In 1833 a ship arrived in Calcutta with 120 tons remaining of its cargo of ice. One third of the original cargo was lost because it had melted on the voyage. How many tons of ice was the ship carrying when it set sail?

- A. 240 B. 80 C. 120 D. 360 E. 180

Question 27

If $\clubsuit + \clubsuit = \star$ and $\star + \clubsuit = \spadesuit$ and $\diamond = \spadesuit + \star + \clubsuit$, how many \clubsuit s are equal to \diamond ?

- A. 2 B. 3 C. 4 D. 5 E. 6

Question 28

At the end of a hard day at the mine, the seven dwarves share out all their gold nuggets, making sure that they each get the same number of nuggets. If there are any left over, they are given to Snow White. Which number of nuggets would leave Snow White with the most?

- A. 300 B. 400 C. 500 D. 600 E. 700

Question 29

Karen was given a mark of 72 for Mayhematics. Her average mark for Mayhematics and Mathemagics was 78. What was her mark for Mathemagics?

- A. 66 B. 75 C. 78 D. 82 E. 84

Question 30

What is the smallest number of additional squares which must be shaded so that this figure has at least one line of symmetry and rotational symmetry of order 2?

- A. 3 B. 5 C. 7 D. 9 E. more than 9

