PYTHAGORAS QUEST

Swedish Maths competition for

grades 6-9

Handelskammaren
I sydsvenska företags intresse

Qualification Round

Time : **60 mins**   Number of problems: **15**   Max: **15 points**.

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1 **Calculate the sum of the smallest and largest of the numbers below:**

0.34   0.304   0.034   0.43?

A : 0.77   B: 0.734   C: 0.077   D: 0.464   E: 0.33

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2 **Sam was born on a Wednesday. Julia was born 72 days later. Which day of the week was Julia born on?**

A: Thursday   B: Monday   C: Sunday   D: Saturday E: Friday

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3 **The following is known about a group of five pupils**

  • **Anna is taller than Claudia**

  • **Dan is shorter than Erik, but taller than Bo**

  • **Erik is shorter than Claudia**

Who is the shortest of all the five pupils?

A: Anna   B: Bo   C: Claudia   D: Dan   E: Erik

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4 **What is $2^4 - 2^3$?**

A: 0^1 B: 1^1 C: 2^1 D: 2^2 E: 2^3

5   **A whole number x, is chosen such that 3x + 1 is an even number. Which of the following expressions leads to an answer that is an odd whole number?**

A: x+3   B: x−3   (C) 2x   (D) 7x+4   (E) 5x+3

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6   **Three <u>different</u> one-digit positive integers are placed in the bottom row of cells. Numbers in adjacent cells are added and the sum is placed in the cell above them. In the second row, continue the same process to obtain a number in the top cell. What is the difference between the largest and smallest numbers possible in the top cell?**
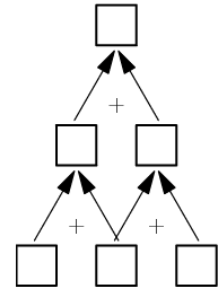
A: 16   B: 24   C: 25   D: 26   E: 35

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7   **In the subtraction to the right, X and Y are digits. What is X +Y?**

$$\begin{array}{r} 1\ X\ 2 \\ -\ \ 8\ Y \\ \hline 4\ 5 \end{array}$$

(A) 15   (B) 12   (C) 10   (D) 13   (E) 9

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8   **What is the product of** $\dfrac{3}{2} \cdot \dfrac{4}{3} \cdot \dfrac{5}{4} \cdot \ \ldots \ \cdot \dfrac{2016}{2015}$ **?**

A: 2016   B: 2015   C: 1008   D: 1002   E: 672

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9   **A rectangle whose side lengths are whole numbers has area 48 cm^2. The perimeter of this rectangle is 32 cm. Measured in cm, the positive difference between the length and the width of the rectangle is**

A: 47   B: 2   C: 22   D: 8   E: 13

10   **Starting from a given starting number, Pelle subtracts 3 and then divides the difference by 9. However, Pelle made a mistake and subtracted 9 first and then divided by 3 and got the answer 43. What would be the answer had he done the correct calculation to start with?**

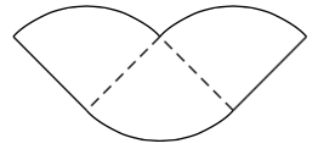A: 15   B: 34   C: 43   D: 51   E: 138

11   **Each day, Lone ate 20% of the jellybeans that were in her jar at the beginning of that day. At the end of the second day, 32 remained. How many jellybeans were in the jar originally?**

A: 40   B: 50   C: 55   D: 60   E: 75

12   **I circle of area 36π is cut into 4 equal parts. 3 of the parts are combined to form the shape to the right. What is the perimeter of the new shape??**

A: 6π+12   B: 9π+12   C: 9π+18   D: 27π+12   E: 27π+24

13   **Two different numbers from the set {−3, −1, 0, 2, 4} are multiplied. What is the probability that their product is 0?**

A: $\dfrac{2}{5}$ B: $\dfrac{1}{10}$ C: $\dfrac{3}{10}$ D: $\dfrac{1}{5}$ E: $\dfrac{1}{2}$

14   On a coordinate grid, Uffe draws a line segment of
length 1 from the origin to the right, stopping at
(1, 0). He then draws a line segment of length 2 up
from this point, stopping at (1,2). He continues to
draw line segments to the right and up, increasing the
length of the line segment he draws by 1 each time.
One of his line segments stops at the point (529, 506).
What is the endpoint of the next line segment that he draws?
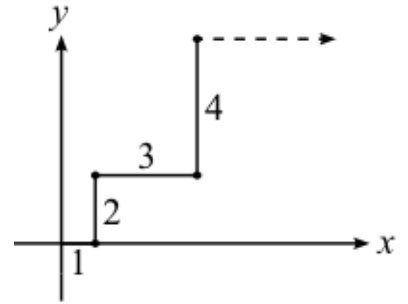
A: $(529, 552)$ B: $(576, 506)$ C: $(575, 506)$ D: $(529, 576)$ E: $(576, 552)$

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15   Nicole and Mathilda have decided to bike "Bolmen runt" which is a 105km
long trail around a lake. Instead of biking together, they both start at
Odensjö, bike in opposite directions around the lake and then picnic when
they meet up along the way. Nicole starts at 8:00 and travels with constant
speed of 26 km/h. Mathilda starts out at 8:30 and bikes with a constant speed
of 20 km/h. At what time do they meet again for a picnic?

A: 9.15   B: 10.00   C:10.30   D: 11.00   E: 12:00
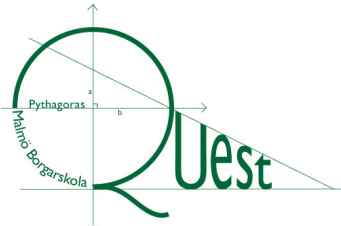
PYTHAGORAS QUEST

Matematiktävling för högstadieelever

Answer sheet

Mark your choice with a letter in the column labelled "Answer".
Remember, only one letter per question.
Correct answer gives 1 point. Wrong or blank answers give zero!

Name: _____ **Class:** _____ **School:** _____

Question	Answer (pupil)	Points (for Teacher)
1		
2		
3		
4		
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Antal poäng =>		