

Stage I Question Set 9

- 1) 20 questions
- 2) Completion time 30 to 40 minutes
- 3) Calculators are permitted
- 4) No penalty for incorrect answers
- 5) Diagrams are not drawn to scale

QUESTION #1

Evaluate $1.5 - 0.5 + 1.2 - 0.3$

- a) 2.4 b) 3.5 c) 1.9 d) 1.65 e) none of the above

QUESTION #2

Evaluate $(ab - ba)(a)$, where a, b are natural numbers.

- a) 0 b) $abba$ c) $2ab$ d) $a + b$ e) none of the above

QUESTION #3

Monty lives in Smallville, B.C. He notes that a mountain bike which sells at a local shop for \$890 can be obtained for \$750 in the nearest large city. If a round trip into the city costs Monty \$85, how much money will Monty save by going to the city and buying the bike?

- a) \$145 b) \$230 c) Monty will not save money. d) \$55 e) none of the above

QUESTION #4

Which of the following expressions is equivalent to 2.5?

- a) $4^2 - 8 - 6.5$ b) $5^3 + 5^2 - 147.5$ c) $382 - 380.5$ d) $1002 - 101.5$ e) none of the above

QUESTION #5

A given number N is multiplied by 3, divided by 2, and then multiplied by 9. The final result is 18. What is the original number?

- a) $\frac{3}{4}$ b) $\frac{5}{3}$ c) $\frac{2}{3}$ d) $\frac{4}{3}$ e) none of the above

QUESTION #6

Round off the product 501.2×2.1 to the nearest whole number.

- a) 1052 b) 1053 c) 1052.5 d) 1050 e) none of the above

QUESTION #7

1 mile = 1.6 km. If Will was driving his Bugliati at 200 km/hour at the local track, what was his speed in miles per hour, to the nearest whole number?

- a) 320 b) 240 c) 125 d) 120 e) none of the above

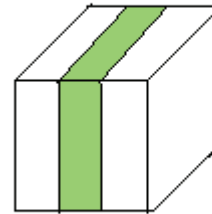
QUESTION #8

Season tickets to view Travis' favorite cricket games cost \$250 per season. Each game ticket costs \$15 bought individually. What is the minimum number of games which Travis must attend to make a season cricket ticket a worthwhile investment?

- a) 16 b) 17 c) 12 d) 10 e) none of the above

QUESTION #9

A cube with dimensions 3 cm x 3 cm x 3 cm is cut into three equal rectangular solids as shown in the figure. By what amount (in cm²) does the surface area of the three rectangular solids exceed the surface area of the cube?



- a) 44 b) 54 c) 36 d) 26 e) none of the above

QUESTION #10

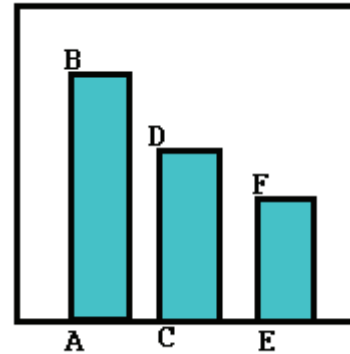
$AC = 3AB/4$. What number is the point C at?



- a) 36 b) 68 c) 54 d) 66 e) none of the above

QUESTION #11

The large square has the dimensions of 5 cm x 5 cm. The shaded rectangles each have a base of 1 cm. $AB = 4$ cm. $CD = 3AB/4$. $EF = 3CD/4$. What is the area of the unshaded region in cm²?



- a) 9 b) 12.5 c) 15.75 d) 10.25 e) none of the above

QUESTION #12

A square has a side π cm long. A rectangle has a base of $\pi/2$ cm and a height of 2π . A circle has a radius of $\pi/2$ cm. Which of the following statements are true?

- a) The circle can fit within the square.
- b) The rectangle has the same area as the square.
- c) The perimeter of the rectangle > the perimeter of the square > the circumference of the circle.
- d) all of the above
- e) none of the above

QUESTION #13

Suppose a particular species of mammal is 1/3 of its adult height by its first birthday, one-half of its height by its fourth birthday, and reaches full adult height on its sixth birthday. If the adult height of this animal is 3 feet, how many feet did the animal grow between its first and fourth birthday?

- a) 0.5 b) 1.2 c) 1.5 d) 2/3 e) none of the above

QUESTION #14

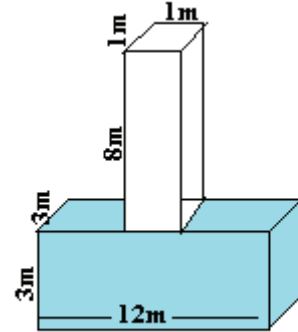
Find the sum of all prime numbers less than 100 which end in 5.

- a) 15 b) 950 c) 35 d) 5 e) none of the above

QUESTION #15

Melissa created a sculpture like the one shown here. Her sculpture consists of two rectangular solids. Find the volume of the figure in m^3 .

- a) 112 b) 47 c) 288 d) 108 e) none of the above



QUESTION #16

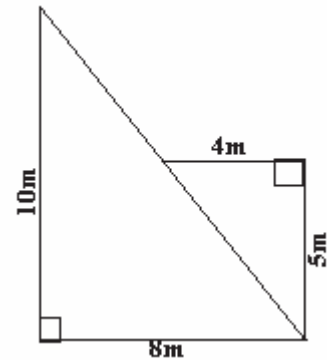
An 8-ounce glass filled with a wondrous algae and garlic concoction weighed 600g. Donald, a world-class triathlete, drank 4 ounces, and the glass and concoction together now weighed 400g. How many grams does the glass by itself weigh?

- a) 175 b) 200 c) 300 d) 150 e) none of the above

QUESTION #17

Find the perimeter of a square that has the area of the figure shown at right.

- a) $5\sqrt{3}$ b) $10\sqrt{2}$ c) $20\sqrt{2}$ d) 15 e) none of the above



QUESTION #18

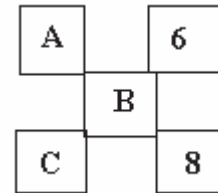
A cylinder which was open at the top and bottom, with a radius of 5 cm and a height of 20 cm, was sliced into 4 equal cylinders. Each of these cylinders is opened up, and all four are welded together into a rectangle. What are possible dimensions for the rectangle in cm?

- a) $80\pi \times 5$ b) $40\pi \times 5$ c) $20\pi \times 20$ d) $40\pi \times 10$ e) none of the above

QUESTION #19

Each diagonal adds up to 25. $A + B + C = 25$. What is $(C + B - A)$?

- a) 19 b) 15 c) 13 d) 8 e) none of the above



QUESTION #20

The speed of light in a vacuum is 300,000 km/second. Approximately how far away is the star Alpha Centauri, if it would take 4.2 years to get there, travelling at light speed?

- a) 400 trillion kilometers
b) 400 billion kilometers
c) 40 billion kilometers
d) 40 trillion kilometers
e) 4 trillion kilometers