Stage I   Question Set 11

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
Find the value of y. y = 3.2 + 0.32 + .032

a) 3.5532   b) 3.52   c) 3.552   d) 35.52   e) none of the above

QUESTION #2
One-quarter of 24.2, expressed as a fraction is:

a) 6 1/20   b) 4 21/25   c) 6 ½   d) 5 ½   e) none of the above

QUESTION #3
What is 30% of 3,000,000?

a) 90,000,000   b) 1,000,000   c) 900,000   d) 270,000   e) none of the above

QUESTION #4
1/x + 1/x = 4. Find the value of x.

a) 2   b) ½   c) ¼   d) 4   e) none of the above
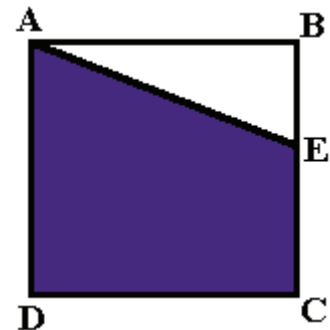
QUESTION #5
Evaluate x + 2 + y + 4, if x = 2.2 and y = 1.1.

a) 9.3   b) 6.3   c) 8.33   d) 7.3   e) none of the above

QUESTION #6
ABCD is a square with a side of 5 m. BE = 2m. Find the area of the quadrilateral AECD in m².

a) 17.5   b) 20   c) 22.5   d) 24   e) none of the above

QUESTION #7
The surface area of a sphere is given by the formula S = 4πR². What is the surface area of a sphere with the radius of 6 cm, in cm²?

a) 144π   b) 72   c) 16π   d) 36π   e) none of the above

QUESTION #8
Stella got a job as a rollerblading stockroom assistant at a mega CD store. If she averages 5 km per shift on her blades, and she works 10 shifts per month, about how many kilometers will Stella have bladed at the store in 4 months?

a) 4,000 km   b) 100 km   c) 50 km   d) 200 km   e) none of the above

QUESTION #9
The area of the triangle is 45 m². What is the height of the triangle, given that AB, with a length of 10m, is the base?
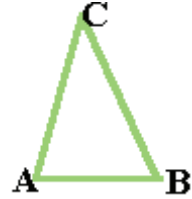
a) 45m   b) 4.5m   c) 4.5 cm   d) 0.45m   e) none of the above
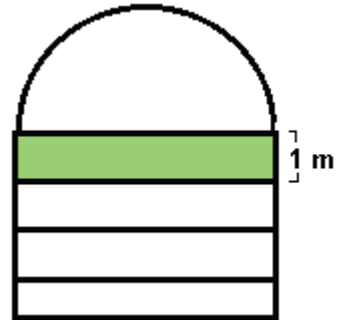
QUESTION #10
Kathy and Joel both left school at the same time. Kathy travelled 15 miles per hour on her ancient 10-speed bike going west, and Joel travelled 20 miles per hour going east on his souped-up mountain bike. Kathy had to go 10 miles west, and Joel had to go 12 miles east. Which of the following statements are true?

a) Kathy arrived at her destination before Joel arrived at his.
b) Joel arrived at his destination before Kathy arrived at hers.
c) Kathy took about 40 minutes to arrive where she was going.
d) a & b
e) b & c

QUESTION #11
K = n², where n is a natural number. K is an odd number. Which of the following statements are true?

a) n is an odd number.   b) 2n is an even number.   c) K² is an odd number.
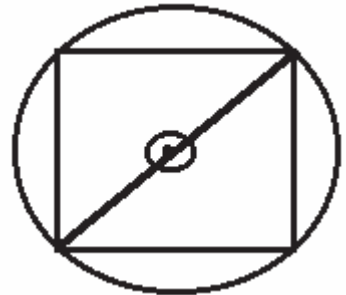d) all of the above   e) none of the above

QUESTION #12
The figure consists of a semicircle with a diameter of 4m and a square divided into four equal rectangles, as shown. What percentage of the total area is the area of shaded rectangle, to the nearest whole number?

a) 18   b) 64   c) 36   d) 72   e) none of the above

QUESTION #13
The diagonal of the square passes through the centre of the circle. What is the area of the square in cm², if the radius of the circle is 10 cm?

a) 20   b) 40   c) 25   d) 200   e) none of the above

QUESTION #14
How many possible 7-digit telephone numbers begin with the prefix "927"?

a) 10,000   b) 1,000   c) 9,999   d) 999   e) none of the above

QUESTION #15
The formula for the area of a cylinder is $\pi(r^2)(h)$, where r is the radius of the base, and h is the height of the cylinder. If a cylinder has a height of 5 cm, and a volume of 125π cm^3 , what is the diameter of the base in meters?

a) 1 cm   b) 1 m   c) 10 m   d) 0.1 m   e) none of the above

QUESTION #16
Alana lives in a semi-tropical city, and belongs to a year-round softball team. The team plays 50 games a year. So far, the team has played 20 games, and won 15. How many of the remaining games must the team win in order to win 80% of its games this year?

a) 25   b) 20   c) 30   d) It is not possible for the team to win 80% of its games this year.
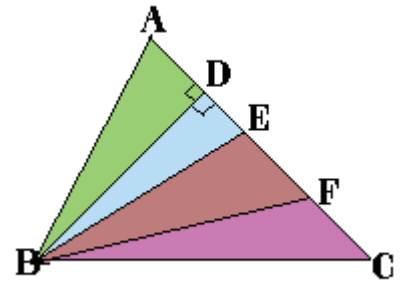e) none of the above

QUESTION #17
A Rubik's cube (TM) has 6 different-coloured faces (red, blue, orange, yellow, green and white), and is composed of 27 unit cubes glued together. If the blue surfaces of two Rubik's cubes are glued together, what percentage of the surface area of the resulting solid is red (to the nearest whole number)?

a) 15   b) 20   c) 17   d) 18   e) none of the above

QUESTION #18
AC = 20m. AD = EF = CF. DE = ½AD. DB = 8m. What is the area of triangle ABF in m²?

a) 60   b) 300/7   c) 400/7   d) 200/7   e) none of the above

QUESTION #19
$a + b > -(ab)$. If b = 8, which of the following statements is true for all a?

a) a > -8/9   b) a < 0   c) 0 > a   d) a > -1   e) none of the above

QUESTION #20
If Tiberius was born on the first day of 21 B.C., and died on the second day of 39 A.D., how many years old was Tiberius when he died?

a) 60 years   b) 59 years   c) 58 years   d) 61 years   e) none of the above