

Stage I Question Set 13

- 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 $\frac{\frac{1}{3} + \frac{1}{6}}{\frac{1}{2}}$

- a) 1/2 b) 2/3 c) 1 d) 2 e) none of the above

QUESTION #2

Find the value of x where $\frac{x + 3}{2} = 6$

- a) 6 b) 3 c) 12 d) 9 e) none of the above

QUESTION #3

What is the least common multiple of 15 and 25?

- a) 375 b) 750 c) 425 d) 125 e) none of the above

QUESTION #4

Express 1.724 as a mixed fraction.

- a) 1 118/250 b) 724/250 c) 1 181/250 d) 181/250 e) none of the above

QUESTION #5

$\alpha = 3$ $\beta = 4$ Evaluate $2\alpha - 3\beta + 4\alpha + 5\beta$

- a) 26 b) 32 c) 24 d) 30 e) none of the above

QUESTION #6

Rachel took the following path: 15 km East, 25 km West, 17 km North, 8 km South, 12 km East.
Which of the following return paths will put Rachael back at her starting point?

- a) 12 km East, 9 km South, 14 km West b) 9 km North and 2 km East c) 9 km South and 2 km West d) a & b
e) a & c

QUESTION #7

What is the ratio of the surface area of a 2 x 2 x 2 cube to a 4 x 4 x 4 cube?

- a) 1/4 b) 1/8 c) 1/2 d) 1/16 e) none of the above

QUESTION #8

BC = AD/8. Find the value of C.

- a) 18 b) 20 c) 25 d) 24 e) none of the above



QUESTION #9

n is a positive integer. Which of the following will always be divisible by 4?

- a) 2n + 2 b) 4n + 4 c) 3n + 1 d) 6n - 2 e) none of the above

QUESTION #10

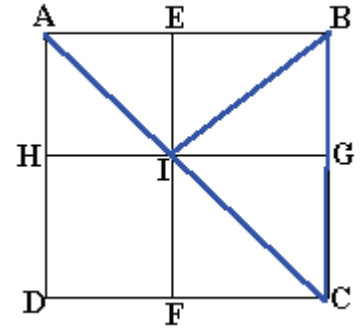
Evaluate $x^3 + x^4 - x - x^2$, where $x = 0.5$

- a) -39/64 b) 19/64 c) 0.05 d) 3/8 e) none of the above

QUESTION #11

ABCD is a square with dimensions 7 x 7. AEHI is a 3 x 3 square. CFGI is a 4 x 4 square. What is the length of the path?

- a) $7 + 7\sqrt{2}$ b) $6 + 7\sqrt{2}$ c) $11\sqrt{2} + 7$ d) $7\sqrt{2} + 12$ e) none of the above



QUESTION #12

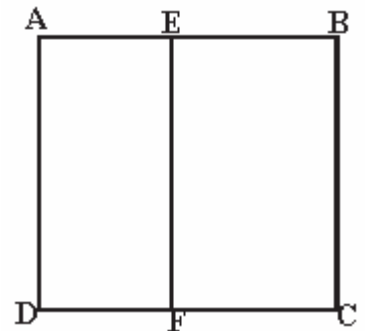
A particular type of gasohol is 90% gasoline and 10% alcohol. If there is 2 L of alcohol in a tank of gasohol, how many liters of gasohol are there in total?

- a) 25 L b) 15 L c) 10 L d) 18 L e) none of the above

QUESTION #13

ABCD is a square with dimensions 15m x 15m. AE = 2AB/5. Find the area of the rectangle EFCB in m².

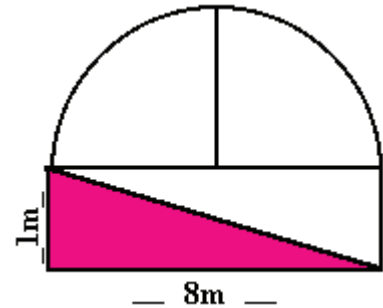
- a) 90 b) 100 c) 75 d) 125 e) none of the above



QUESTION #14

The figure consists of a semicircle and a rectangle as shown. What percentage of the total area is the shaded triangle (to the nearest whole number)?

- a) 30 b) 24 c) 16 d) 12 e) none of the above



QUESTION #15

Matilda is 13 years old, and 158 cm tall. Her 18-year-old brother Niles is 180 cm tall and has finished growing. How many cm must Matilda grow in order to be 95% as tall as Niles?

- a) 15 b) 14.5 c) 13 d) 12 e) none of the above

QUESTION #16

The sums of the rows and columns are given. Find the value of T.

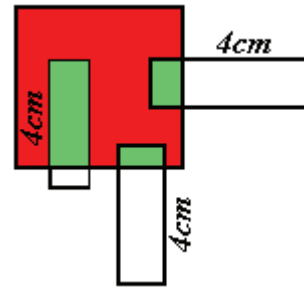
- a) 21 b) 24 c) 27 d) 32 e) none of the above

A	D	B	D	
B	D	B	D	20
B	A	B	C	12
A	C	B	A	15
14	T	8		

QUESTION #17

The square has dimensions of 5 x 5. Each rectangle has dimensions of 1 x 5. What is the ratio of the white area to the red area?

- a) 6/19 b) 9/25 c) 9/19 d) 13/19 e) none of the above



QUESTION #18

Pierre and a group of friends drove 1200 miles to Los Angeles, and alternated driver duties without stopping at hotels. Their average speed for the first 800 miles was 50 miles per hour, but only 40 miles per hour for the last 400. How much sooner would Pierre have arrived if they had averaged 60 miles per hour throughout the whole trip?

- a) 8 hours b) 6 1/2 hours c) 6 hours d) 10 hours e) none of the above

QUESTION #19

Yolanda had a watch with only an hour hand, but it kept precise time. What is the exact time when the hour hand is precisely 3/5 of the distance between the 10 and the 11?

- a) 10:25 b) 11:00 c) 10:20 d) 10:36 e) none of the above

QUESTION #20

One type of orange soda states that it consists of 10% juice. An orange drink has 25% juice. What is the difference in the amount of juice between 2L of the orange drink and 2L of the orange soda?

- a) 0.2L b) 0.3L c) 0.25L d) 0.5L e) none of the above