

Stage I Question Set 5

- 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:

Which element in this set is different? $\{2^2, 4, 2 + 2, 8 \div 4\}$

- a) 2^2 b) $8 \div 4$ c) $2 + 2$ d) The elements are all the same. e) The elements are all different.

QUESTION #2:

Which of the following statements are true?

- a) An equilateral triangle with a side of 3m has a greater perimeter than a square with a side of 2.5 m.
- b) A rectangle with sides of 2m and 5m has a greater area than a square with a side of 4m.
- c) A rectangle with sides of 1 and 8 has a greater perimeter than a square with sides of 5m.
- d) all of the above
- e) none of the above

QUESTION #3:

Evaluate $5^2 + 4^3 + 1$

- a) 142 b) 90 c) 89 d) 143 e) none of the above

QUESTION #4:

While driving on the Autobahn, Susan drove 100 miles in 70 minutes. Timothy drove 90 miles in 60 minutes. Which of the following statements are true?

- a) Timothy's average speed was faster than Susan's.
- b) Timothy's average speed was 60 miles/hour.
- c) Susan's average speed was approximately 86 miles per hour.
- d) a & c
- e) none of the above

QUESTION #5:

On Monday, oranges were 89 cents per kilogram. On Tuesday, oranges cost 69 cents per kilogram. Which of the following statements are true?

- a) 5 kg of oranges on Tuesday cost less than 4 kilograms of oranges on Monday.
- b) 3 kg of oranges on Monday cost more than 4 kilograms of oranges on Tuesday.
- c) 89 kg of oranges of Tuesday cost the same as 69 kilograms of oranges on Monday.
- d) a & b
- e) a & c

QUESTION #6:

Evaluate $2 + \frac{1}{2} + 0.5 + 3.1$

- a) 4.2 b) 6.1 c) $5\frac{1}{2}$ d) 3 e) none of the above

QUESTION #7:

Evaluate $\frac{1 + \frac{1}{2}}{2 + \frac{1}{2}}$

- a) $\frac{5}{7}$ b) $\frac{7}{5}$ c) $\frac{3}{5}$ d) $\frac{1}{3}$ e) none of the above

QUESTION #8:

$AC = AB/3$. What number is B at?

- a) 18 b) 32 c) 42 d) 36 e) none of the above



QUESTION #9:

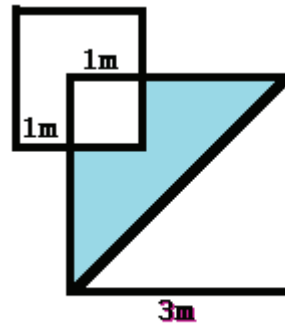
46 cm of rain fell in Topville in March. 59 cm of rain fell in Topville in April. If May brings half the amount of rainfall that March had, how many cm of rain will have fallen in March, April and May?

- a) 128 cm b) 256 cm c) 64 cm d) 149 cm e) none of the above

QUESTION #10

The larger square has sides of 3m. It has a square with dimensions 1 x 1 m² cut out of the upper left edge, as shown. Find the area of the shaded region in m².

- a) 8 b) $4\sqrt{2}$ c) 3.5 d) 7.2 e) none of the above



QUESTION #11

1 ounce = 28 g (measured by weight). If Terry has 16 ounces of gold, how many grams does he have?

- a) 444 b) 448 c) 420 d) 476 e) none of the above

QUESTION #12

Each side of the star is 1m. How many centimeters is the perimeter?

- a) 1000 b) 100 c) $50\sqrt{2}$ d) 10π e) none of the above



QUESTION #13:

A number N , is first multiplied by 3, then divided by 2, and then 3 is subtracted from the result. The resulting number is 52. What is N

- a) 45 b) $15\frac{1}{2}$ c) 30 d) $36\frac{2}{3}$ e) none of the above

QUESTION #14:

Two brothers are two years apart in age. The sum of their ages is equal to their father's age. If their father will retire at age 65 in 11 years, how old will the younger brother be then?

- a) 37 b) 24 c) 26 d) 28 e) none of the above

QUESTION #15

The area of the smaller circle is $\frac{1}{3}$ the area of the larger circle. If the larger circle has area of $36\pi \text{ cm}^2$, what is the radius of the smaller circle?

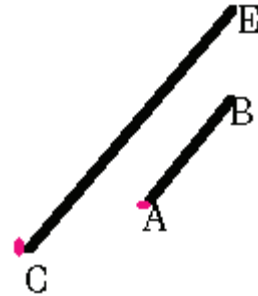
- a) $3\sqrt{2}$ b) 3 c) $2\sqrt{3}$ d) $6\sqrt{3}$ e) none of the above



QUESTION #16:

$AB = 7$ units. $CE = 14$ units. An ant is travelling along AB , and it is 3 times as fast as the ladybug which is travelling along CE . If the ant starts at A , and the ladybug starts at C , at the same time, and each is travelling along their respective line segment, which of the following statements are true?

- a) The ladybug will take 6 times as long as the ant to finish its course.
b) The ant will take 6 times as long as the ladybug to finish its course.
c) The ladybug will take 3 times as long as the ant to finish its course.
d) The ant has a longer course.
e) none of the above



QUESTION #17

What is the sum of the interior angles of the polygon shown, in degrees?

- a) 270 b) 540 c) 630 d) 640 e) none of the above



QUESTION #18:

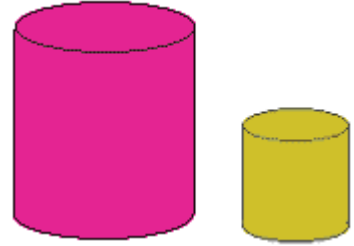
Julie has some nickels, twice as many dimes as she does nickels, and twice as many quarters as she does dimes. If she has 70 nickels, dimes and quarters altogether, what is the value of her dimes?

- a) \$1.80 b) \$0.90 c) \$2 d) \$1.40 e) none of the above

QUESTION #19:

The smaller cylinder has a circular base which has a radius which is half that of the larger cylinder, and a height which is half of the larger cylinder. What fraction represents the proportion between the volume of the smaller cylinder and the volume of the larger cylinder?

- a) $\frac{1}{8}$ b) $\frac{1}{4}$ c) $\frac{1}{2}$ d) $\frac{1}{6}$ e) none of the above



QUESTION #20:

If December 3 of a particular year is a Sunday, which of the following statements are true?

- a) There are exactly four Sundays in December.
b) There are exactly four Sundays in November.
c) There are exactly four Sundays in the next month (January).
d) a, & b
e) b & c