

# Stage I Question Set 10

- 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  $1/5 + 1/2 + 1/4$

- a)  $6/5$    b)  $5/4$    c)  $19/20$    d)  $9/5$    e) none of the above

## QUESTION #2

Evaluate  $5 \times 5 + 5 \times 0.5 + 5 \times 0.05$

- a) 25.5   b) 27.5   c) 25.75   d) 27.75   e) none of the above

## QUESTION #3

Find the surface area (in  $\text{km}^2$ ) of a city which is shaped like a rectangle with dimensions of 22 km x 33 km.

- a) 660   b) 1452   c) 726   d) 724   e) none of the above

## QUESTION #4

A one liter jug of cow's milk costs \$1.25, but a two liter jug costs \$2.25. If Emily buys 8L of milk in 2-liter jugs, how much does she save as compared to buying the milk in 1 L jugs?

- a) \$1   b) \$9   c) \$10   d) \$2   e) none of the above

## QUESTION #5

Evaluate  $\sqrt[3]{64}(-1)$

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

## QUESTION #6

Evaluate  $\sqrt{64} + \sqrt{128}$

- a)  $16\sqrt{2}$    b)  $8+8\sqrt{2}$    c) 16   d)  $8\sqrt{2}$    e) none of the above

## QUESTION #7

$x = 3.2$  and  $y = 6.4$ . Which of the following expressions is the least?  
 $x/y$  ;  $y/x$  ;  $(x + y)$  ;  $(x - y)$  ;  $(y - x)$

- a)  $x/y$    b)  $y/x$    c)  $x + y$    d)  $x - y$    e)  $y - x$

**QUESTION #8**

Thomas, a DJ at radio station COOL, promised to play "Heartbreak Hotel" every 12 minutes for the next five hours unless given bona fide proof of a recent Elvis sighting. No proof was forthcoming. If Thomas first played the song at 3:12 a.m., how many times had he played it by 7:45 a.m. later that morning?

- a) 21   b) 20   c) 24   d) 25   e) none of the above

**QUESTION #9**

1 kg = 2.2 pounds. Perry was a bantam weight wrestler at 50 kg. About how many pounds did he weigh?

- a) 100   b) 120   c) 110   d) 105   e) none of the above

**QUESTION #10**

Evaluate  $\frac{4 + 0.4}{0.4}$

- a) 10   b) 17.6   c) 1.76   d) 11   e) none of the above

**QUESTION #11**

Kathryn spends 25% of her take-home income on clothing. If she earns \$3000 gross per month, and has deductions amounting to 20% of her gross salary, how much does Kathryn spend on clothing per month?

- a) \$800   b) \$500   c) \$400   d) \$600   e) none of the above

**QUESTION #12**

Which of the following elements in the set is the greatest, if  $x < 0$ ?

$\{x - 1, x + 1, -x\}$

- a)  $x - 1$    b)  $x + 1$    c)  $-x$    d) Two elements are equally small.   e) You cannot determine which element is greatest from the given information.

**QUESTION #13**

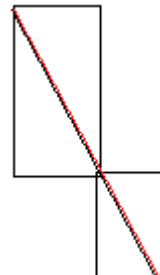
Find the lowest 3-digit number that is divisible by 4, 5, and 9.

- a) 360   b) 180   c) 209   d) 332   e) none of the above

**QUESTION #14**

The large rectangle has dimensions of 4 cm x 8 cm, and the smaller rectangle has dimensions of 2 cm x 4 cm, as shown. What is the length of the line shown?

- a)  $6\sqrt{5}$    b)  $4\sqrt{5}$    c)  $5\sqrt{2}$    d) 8   e) none of the above



**QUESTION #15**

What is the circumference of the largest circle (in meters) that can be placed within a rectangle that is 15m x 20m?

- a)  $56.25\pi$    b) 225   c)  $15\pi$    d)  $225\pi$    e) none of the above

**QUESTION #16**

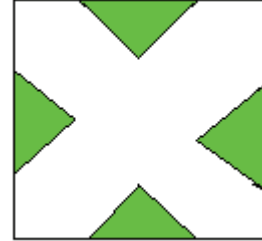
What is the smallest 3-digit number that is divisible by both 6 and 7?

- a) 126
- b) 168
- c) 108
- d) 112
- e) none of the above

**QUESTION #17**

The figure is a square with dimensions of 8 cm x 8 cm. Each triangle is identical, with a base of 3 cm and a height of 2 cm. What is the area of the white region, in  $\text{cm}^2$ ?

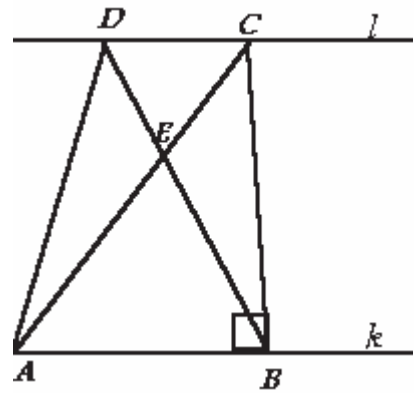
- a) 16
- b) 18
- c) 6
- d) 52
- e) none of the above



**QUESTION #18**

$AB = 8$  cm.  $BC = 10$  cm.  $l$  and  $k$  are parallel lines. The area of triangle  $DEA$  is  $16$   $\text{cm}^2$ . What is the area of triangle  $ABE$ ?

- a) 16
- b) 40
- c) 32
- d) It cannot be determined from the given information.
- e) none of the above



**QUESTION #19**

The circle has an area of  $36\pi$   $\text{cm}^2$ , and is divided into 6 equal sections as shown. If another circle has the same area as one of these sections, what is the radius of the smaller circle in cm?

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



**QUESTION #20**

A square with dimensions is divided into 4 equal triangles as shown. If the area of one of the triangles is  $25$   $\text{cm}^2$ , what is the perimeter of the square?

- a) 50 cm
- b) 100 cm
- c) 40 cm
- d) 75 cm
- e) none of the above

