Algebra

1.

$x, y \in Z^+$,

$3x + 4y = 24 \Rightarrow x + y = ?$

A) 5 B) 6 C) 7 D) 8 E) 9

2.

$2^{-x} = 3 \Rightarrow 27 \cdot 2^{2x+1} = ?$

A) $\frac{16}{3}$ B) 6 C) 3 D) 7 E) 9

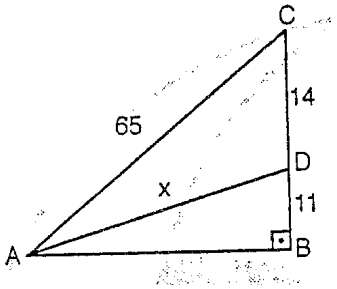
3.

$\cos x = \frac{1}{3}$ *and* $x \in \left(0, \frac{\pi}{2}\right) \Rightarrow tan2x = ?$

A) $\frac{3\sqrt{2}}{5}$ B) $\frac{4\sqrt{2}}{7}$ C) $\frac{6\sqrt{2}}{7}$ D) $\frac{-4\sqrt{2}}{7}$ E) $\frac{5}{2}$

4.

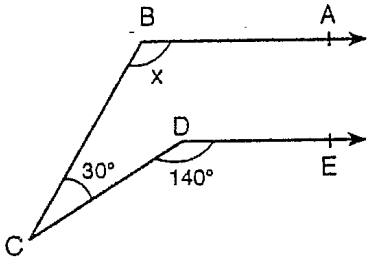
$AB \perp BC$
$|AC| = 65$ cm
$|CD| = 14$ cm
$|BD| = 11$ cm
$\Rightarrow |AD| = x = ?$



A) 57 B) 58 C) 59 D) 60 E) 61

5.

$[BA \parallel [DE$
$m(\widehat{BCD}) = 30°$
$m(\widehat{CDE}) = 140°$
$\Rightarrow m(\widehat{CBA}) = ?$



A) 170° B) 150° C) 130° D) 120° E) 110°

Physics

1.

I. Making dough from flour

II. Making bread by cooking the dough

III. Frying bread in the oil

Which of the above written action(s) is (are) physical transitions?

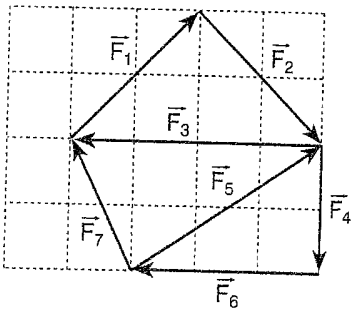
A) I B) II C) III D) II and III E) All

2.

Which of the below written answers is not common characteristics of the matter?

A) Mass B) Volume C) Inertia D) Cellular Structure E) Specific Heat

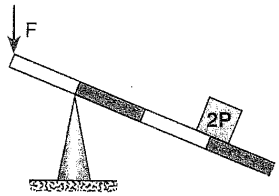
3.



Which of the followings is the resultant force of the forces as shown in the Figure?

A) $\overrightarrow{F_3}$ B) $\overrightarrow{F_5}$ C) $\overrightarrow{F_7}$ D) $-\overrightarrow{F_3}$ E) $\overrightarrow{F_4}$

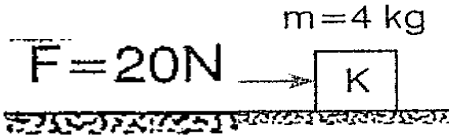
4.



If the weight of an object is 2P, what is the magnitude of the force F in terms of P? (Hatches have equal length**)**

A) 2P B) 3P C) 4P D) 5P E) 6P

5.



4 kg box is pushed by F = 20N force for 2 seconds from the rest. What is the power for above-mentioned period?

A) 50 Watt B) 80 Watt C) 90 Watt D) 100 Watt E) 150 Watt

IQ

1.

I. $\frac{a}{3} \oplus (b+1) = a \cdot b$

II. $2 \oplus 3 = ?$

In the first equation, the function of ⊕ is established. According to this function, which of the following does the question mark stand for in equation II?

A) $\frac{3}{2}$ B) $\frac{2}{3}$ C) 1 D) 6 E) 12

2.

I. $a * b = \begin{cases} a-2b, & a<b \\ 3ab, & b \le a \end{cases}$

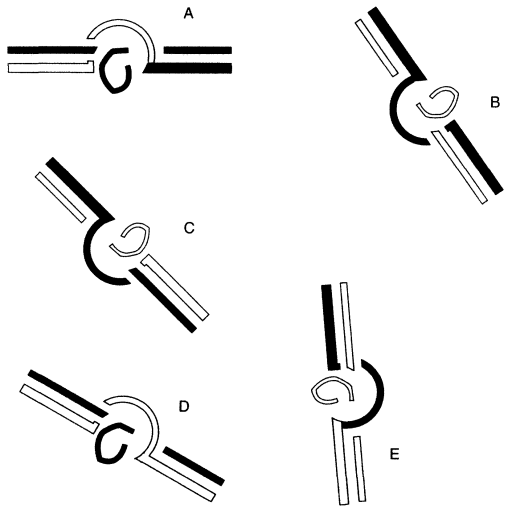
II. $[(-1)*]*(-2) = ?$

In the first equation, the function of ✳ is established. According to this function, which of the following does the question mark stand for in equation II?

A) −3 B) −2 C) 4 D) 6 E) 8

3.

Which is the odd one out?



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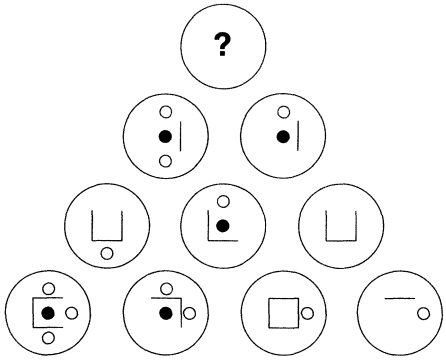
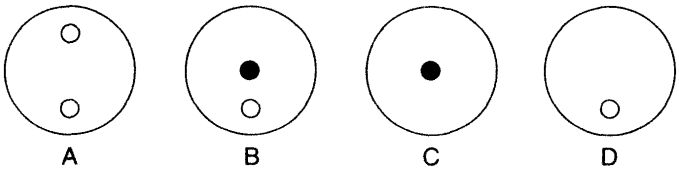


Which circle should replace the question mark?



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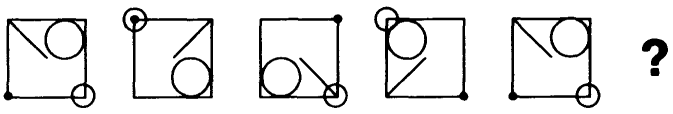

What comes next?