

Memory-Based Questions

Circle  $C$  touches the line  $l_1 = 4x - 3y + k_1 = 0, l_2 = 4x - 3y + k_2 = 0$ , where  $k_1, k_2 \in \mathbb{R}$ . If a line passing through the centre of circle intersect at  $l_1$  at  $(-1, 2)$  and  $l_2$  at  $(3, -6)$  equation of circle is:

- a**  $x^2 + y^2 - 2x + 4y - 11 = 0$
- b**  $x^2 + y^2 + 2x - 4y - 11 = 0$
- c**  $x^2 + y^2 - 2x + 6y - 11 = 0$
- d**  $x^2 + y^2 - 2x - 4y + 11 = 0$



## Memory-Based Questions

✓ If  $\frac{a+b}{7} = \frac{b+c}{8} = \frac{c+a}{9}$  and  $(a, b, c)$  are the sides of  $\Delta ABC$ , then find  $\frac{R}{r}$  where  $R$  is circumradius &  $r$  is Inradius.

a  $\frac{5}{2}$

b 3

c 1

d  $\frac{1}{2}$



Memory-Based Questions

A particle starts moving under the influence of force  $\vec{F} = 10\hat{i} + 5\hat{j} \text{ N}$ . If mass of particle is  $0.1 \text{ kg}$  and its displacement ( $\vec{s}$ ) in  $t = 2 \text{ s}$  is given by  $\vec{s} = a\hat{i} + b\hat{j}$ , then the value of  $a/b$  is-

- a 1
- b 2
- c 3
- d 4



Memory-Based Question

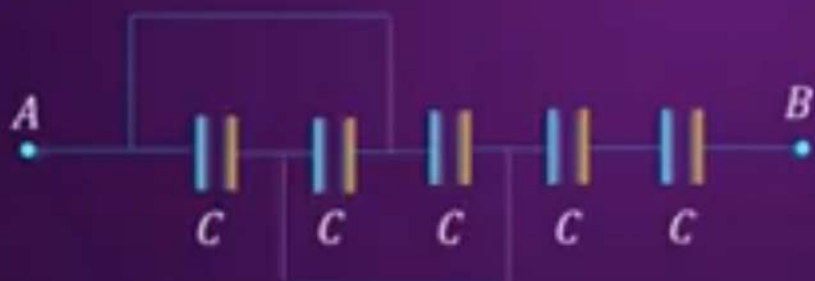
Find the equivalent capacitance between  $A$  and  $B$ . ( $C = 8\mu F$ )

a  $\frac{21}{8}\mu F$

b  $\frac{27}{4}\mu F$

c  $\frac{24}{7}\mu F$

d  $\frac{29}{7}\mu F$



Memory-Based Questions

✓ In the following figure,  $x$  length of a uniform chain is hanging from the table. what is the maximum value of  $x$  for which chain will not slip?

$\mu = 0.5, l = 6 \text{ m}$

- a 3 m
- b 4 m
- c 2 m**
- d 1 m



## Memory-Based Questions



If  $\hat{A}$  and  $\hat{B}$  are unit vectors and  $\theta$  is angle between them, then choose the correct option-

~~a~~  $|\hat{A} - \hat{B}| = |\hat{A} + \hat{B}| \tan\left(\frac{\theta}{2}\right)$      b  $|\hat{A} + \hat{B}| = |\hat{A} - \hat{B}| \tan\left(\frac{\theta}{2}\right)$

c  $|\hat{A} - \hat{B}| = |\hat{A} + \hat{B}| \cos\left(\frac{\theta}{2}\right)$      d  $|\hat{A} + \hat{B}| = |\hat{A} - \hat{B}| \cos\left(\frac{\theta}{2}\right)$

