

17 What is an equation of a circle with center $(7, -3)$ and radius 4?

~~(1) $(x - 7)^2 + (y + 3)^2 = 4$~~

~~(2) $(x + 7)^2 + (y - 3)^2 = 4$~~

(3) $(x - 7)^2 + (y + 3)^2 = 16$

(4) $(x + 7)^2 + (y - 3)^2 = 16$

18 Which quadrilateral has diagonals that always bisect its angles and also bisect each other?

(1) rhombus

(2) rectangle

(3) parallelogram

(4) isosceles trapezoid

19 The equation of line k is $y = \frac{1}{3}x - 2$. The equation of line m is $-2x + 6y = 18$. Lines k and m are

(1) parallel

(2) perpendicular

(3) the same line

(4) neither parallel nor perpendicular

$$\begin{array}{r} -2x + 6y = 18 \\ +2x \qquad +2x \end{array}$$

$$\frac{6y}{6} = \frac{2x + 18}{6}$$

$$y = \left(\frac{1}{3}\right)x + 3$$

20 What is the length of the line segment whose endpoints are $A(-1, 9)$ and $B(7, 4)$?

(1) $\sqrt{61}$

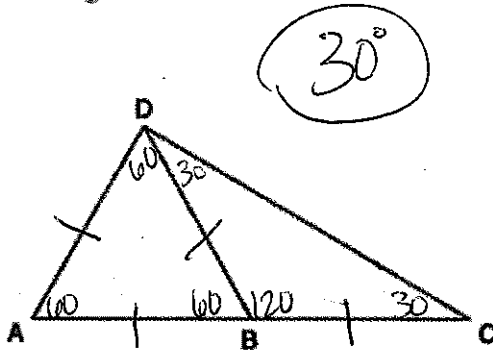
(2) $\sqrt{89}$

(3) $\sqrt{205}$

(4) $\sqrt{233}$

$$\sqrt{(4 - 9)^2 + (7 - (-1))^2} = \sqrt{25 + 64} = \sqrt{89}$$

21 In the diagram below of $\triangle ACD$, B is a point on \overline{AC} such that $\triangle ADB$ is an equilateral triangle, and $\triangle DBC$ is an isosceles triangle with $\overline{DB} \cong \overline{BC}$. Find $m\angle C$.



30°

$$\frac{180 - 120}{2} = 30$$

What is the equation of a line that is perpendicular to the equation $2y + 4 = 10x$ and goes through the point $(-10, 2)$?

$$\begin{array}{l} 2y = 10x - 4 \\ \frac{2y}{2} = \frac{10x - 4}{2} \\ y = 5x - 2 \\ \downarrow \\ -\frac{1}{5} \end{array}$$

$$\begin{array}{l} y - 2 = -\frac{1}{5}(x + 10) \\ y - 2 = -\frac{1}{5}x - 2 \\ y - 2 + 2 = -\frac{1}{5}x - 2 + 2 \\ y = -\frac{1}{5}x \end{array}$$

22