Name: _____ Period: _____ Date: _____

Polar Coordinates Exit Quiz

Part A Instructions: Choose the option that completes the sentence or answers the question.

1. **A polar coordinate is represented by:**

   a. $P(x, y)$
   b. $P(r, \theta)$
   c. $P(z, t)$
   d. None of these

2. **In re-writing polar coordinates, the factor $k\pi$ can be:**

   a. Added
   b. Subtracted
   c. Both a and b
   d. None of these

3. **When adding the factor $k\pi$, if k is positive, then r becomes:**

   a. negative
   b. positive
   c. 0
   d. None of these

4. **The distance between two polar coordinates is given by:**

   a. $P_1P_2 = \sqrt{{r_1}^2 + {r_2}^2 - 2r_1r_2cos(\theta_2 - \theta_1)}$
   b. $P_1P_2 = \sqrt{{r_1}^2 - {r_2}^2 - 2r_1r_2cos(\theta_2 - \theta_1)}$
   c. $P_1P_2 = \sqrt{{r_1}^2 + {r_2}^2 - 2r_1r_2cos(\theta_2 + \theta_1)}$
   d. None of these

Part B Instructions: Answer the question below.

5. **Use distance formula to find the distance between $\left(3, \frac{\pi}{2}\right)$ and $\left(8, \frac{4\pi}{3}\right)$.**

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Polar Coordinates Exit Quiz

Answers

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Part B Instructions: Answer the question below.

5. **Use distance formula to find the distance between $\left(3, \frac{\pi}{2}\right)$ and $\left(8, \frac{4\pi}{3}\right)$.**

Let $P_1(r_1, \theta_1) = P_1\left(3, \frac{\pi}{2}\right)$ and $P_2\left(8, \frac{4\pi}{3}\right)$, then:

$$P_1P_2 = \sqrt{3^2 + 8^2 - 2(3)(8)\cos\left(\frac{4\pi}{3} - \frac{\pi}{2}\right)}$$

$$P_1P_2 = \sqrt{9 + 64 - 48\cos\left(\frac{5\pi}{6}\right)}$$

$$\rightarrow P_1P_2 = 10.70$$