Question 5

If $z \in C$, where $\text{Re}(z) > 0$ and $\text{Arg}\left(\frac{z}{\overline{z}}\right) = \frac{\pi}{3}$, then $\text{Arg}(z)$ is equal to

A. 0

B. $-\frac{\pi}{3}$

C. $\frac{\pi}{2}$

D. $\frac{\pi}{3}$

E. $\frac{\pi}{6}$

Question 6

Which one of the following relations represents a graph of a straight line that passes through the origin?

A. $\text{Re}(z) + \text{Im}(z) = 1$

B. $z + \overline{z} = 1$

C. $\text{Re}(z) - \text{Im}(z) = 0$

D. $z\overline{z} = 1$

E. $\text{Re}(z)\text{Im}(z) = 1$

Question 7

A curve C is defined by the equation $x^2 - 4xy + 2y^2 = -2$.

Equations of all tangents that are parallel to the x-axis will satisfy the condition

A. $y = 2x$

B. $y = x$

C. $y = \frac{x}{2}$

D. $y = -\frac{x}{2}$

E. $y = -x$

