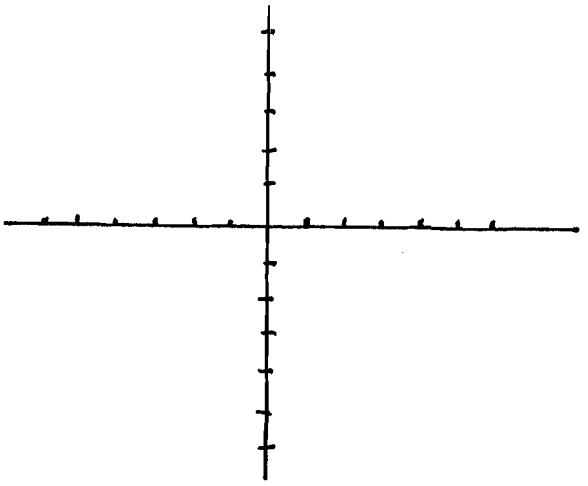
TRIGONOMETRY HW # 63 Name _____

Polar Form of a Complex Number

P-2H

1. If $w = 3 + 2i$ and $z = -1 + 3i$, plot w, z, $w + z$, and $w - z$ in the complex plane.



Find wz and $\frac{w}{z}$ in polar form with $0° \leq \theta < 360°$. Round decimals to hundredths.

2. $w = 2 \text{ cis } 60°$, $z = 3 \text{ cis } 20°$

3. $w = 0.5 \text{ cis } 150°$, $z = 2 \text{ cis } 210°$

Express in $x + yi$ form. Give exact answers in simplest radical form.

4. $2(\cos 60° + i \sin 60°)$

5. $2 \text{ cis } 210°$

6. $4 \text{ cis } 135°$

Express in polar form. Round angle measures to the nearest tenth of a degree.

7. $\sqrt{3} - i$

8. $2\sqrt{2} + 2\sqrt{2}\,i$

9. $12 + 5i$

Review

10. Find rectangular coordinates for the point (8, -135°). Leave your answer in simplest radical form.

11. Find polar coordinates for the point $(-3, -\sqrt{3})$. Leave r in simplest radical form.

12. Find a polar equation for $x^2 + y^2 + 6x = 0$.

13. Find a rectangular-coordinate equation for $r - r\cos\theta = 2$.