

10.24 (a)  $x^2 + 4x + 5 = 0$   $x = \frac{-4 \pm \sqrt{16 - 20}}{2} = -2 \pm \frac{2i}{2} = -2 \pm i$

(b)  $x^2 + 4x + 7$   $x = \frac{-4 \pm \sqrt{16 - 28}}{2} = -2 \pm \frac{2\sqrt{3} \cdot i}{2} = -2 \pm \sqrt{3} \cdot i$

Probe: Du

10.25 (a)  $x^2 - 2x + 2 = 0 \Rightarrow (x-1)^2 + 1 = 0$   
 $\Rightarrow (x-1)^2 = -1$   
 $(x-1) = \pm i \Rightarrow x = 1 \pm i$   
 $(x-1-i)(x-1+i) = [(x-1)^2 - i^2]$

(b)  $x^2 - 8x + 25 = 0 \Rightarrow (x-4)^2 + 9 = 0$   
 $x-4 = \pm 3i$   
 $x = 4 \pm 3i$   
 $(x-4-3i)(x-4+3i) = [(x-4)^2 - (3i)^2]$

10.28  $(1+i)^3 = (1+i)^2(1+i) = (1+2i+i^2)(1+i) = 2i(1+i)$   
 $= 2i - 2$

$(-1+i)^3 = (-1+i)^2(-1+i) = (1-2i+i^2)(-1+i) = -2i(-1+i)$   
 $= 2i + 2$

10.30(a)  $(x-a)^2 = -a^2 < 0 \iff$

~~10.32~~  
 10.32(a)(b)(c)(d)

