099 §6.6 #s 1, 3, 25, 27, 41, 45, 47, 49, 59 67, ~~69~~ 71, 75, 77

(1) $\sqrt{-36} = \sqrt{-1}\sqrt{36} = i \cdot 6 = \boxed{6i}$

(3) $-\sqrt{-25} = -\sqrt{-1}\sqrt{25} = -i \cdot 5 = \boxed{-5i}$

(25) $(2+3i) + (3+6i)$

$= (2+3) + (3i+6i)$

$= \boxed{5+9i}$

(27) $(3-5i) + (2+4i)$

$= \boxed{5-i}$

(41) $3i(4+5i)$

$= 12i + 15i^2$

$= 12i - 15$

$= \boxed{-15+12i}$

(45) $(3+2i)(4+i)$

$= 12 + 3i + 8i + 2i^2$

$= 12 + 11i - 2$

$= \boxed{14+11i}$

(47) $(4+9i)(3-i)$

$= 12 - 4i + 27i - 9i^2$

$= 12 + 23i + 9$

$= \boxed{21+23i}$

(49) $(1+i)^3 =$

$\binom{3}{0}(1)^3(i)^0 + 3(1^2)(i) + 3(1)(i)^2 + i^3$

$= 1 + 3i + 3i^2 + i^3$

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

$= 1 + 3i - 3 - i$

$= \boxed{-2+2i}$

099 §6.6 #s 59, 67, 71, 75, 77

(59) $(2+i)(2-i) = 2^2 - i^2 = 4 - (-1) = 5$

(67) $\frac{2-3i}{i} = \left(\frac{2-3i}{i}\right)\left(\frac{-i}{-i}\right) = \frac{-2i+3i^2}{-i^2}$

$= \frac{-2i-3}{-(-1)} = \frac{-2i-3}{1} = \boxed{-3-2i}$

(71) $\frac{4}{2-3i} = \left(\frac{4}{2-3i}\right)\left(\frac{2+3i}{2+3i}\right) = \frac{8+12i}{2^2-(3i)^2}$

$= \frac{8+12i}{4-9i^2} = \frac{8+12i}{4+9} = \frac{8+12i}{13}$

$= \boxed{\frac{8}{13} + \frac{12}{13}i}$

(75) $\frac{2+3i}{2-3i} = \left(\frac{2+3i}{2-3i}\right)\left(\frac{2+3i}{2+3i}\right) = \frac{4+6i+6i+9i^2}{4-9i^2}$

$= \frac{4+12i-9}{4+9} = \frac{-5+12i}{13} = \boxed{\frac{-5}{13} + \frac{12}{13}i}$

(77) $\frac{5+4i}{3+6i} = \left(\frac{5+4i}{3+6i}\right)\left(\frac{3-6i}{3-6i}\right) = \frac{15-30i+12i-24i^2}{9+36}$

$= \frac{15-18i+24}{45} = \frac{39-18i}{45} = \frac{3(13-6i)}{3(15)} = \frac{13-6i}{15}$

$= \boxed{\frac{13}{15} - \frac{6}{15}i}$