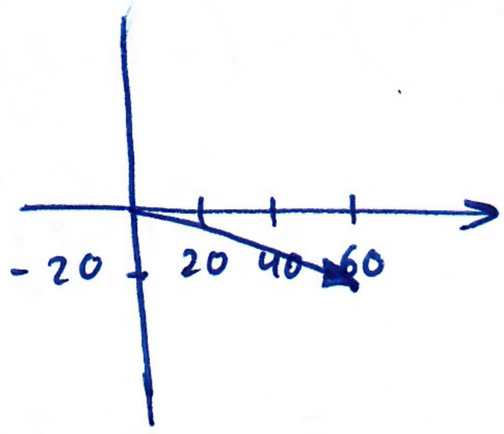
#28 $60 - 20j$ keep the radicals!



$r = \sqrt{60^2 + (-20)^2} = \sqrt{3600 + 400} = \sqrt{4000} = 20\sqrt{10}$

$\theta_{ref.} = \tan^{-1} \frac{-20}{60} = \tan^{-1} -\frac{1}{3} \approx -18.4^\circ$

$\theta = -18.4^\circ$ or $\theta = 360^\circ - 18.4^\circ = 341.6^\circ$

$$60 - 20j = 20\sqrt{10}\,\angle -18.4^\circ = 20\sqrt{10}\,\angle 341.6^\circ$$

converting to radians: $\frac{\pi \cdot (-18.4^\circ)}{180^\circ} \approx -0.32$

$\frac{\pi \cdot (341.6^\circ)}{180^\circ} \approx 5.96$

$$60 - 20j = 20\sqrt{10}\, e^{-0.32j} = 20\sqrt{10}\, e^{5.96j}$$

#34. $48(\cos 60^\circ + j \sin 60^\circ) = 48 \cdot 0.5 + 48 \cdot j \cdot \frac{\sqrt{3}}{2}$ $\approx 24 + 41.6j$

#42 $e^{-3.62j} = 1\,\angle -207.4^\circ = 1(\cos(-207.4^\circ) + j \sin(-207.4^\circ))$

$r = 1$

$deg = \frac{-3.62 \cdot 180^\circ}{\pi} \approx -207.4^\circ$

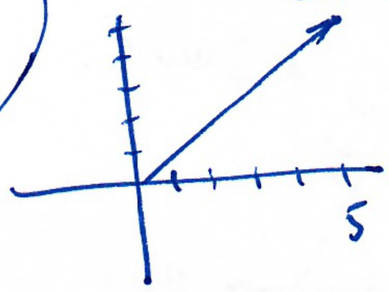
$\approx -0.89 + 0.46j$

#46 $2.5\angle 162^\circ \cdot 8\angle 115^\circ = \boxed{20\angle 277^\circ}$

#57 $(2\angle 16^\circ)^{10} = 2^{10}\angle 10\cdot 16^\circ = \boxed{1024\angle 160^\circ}$

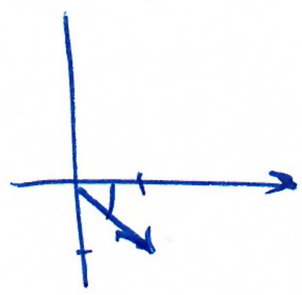
#63 $\dfrac{(5+5j)^4}{(1-j)^6} = \dfrac{(5\sqrt{2}\angle 45^\circ)^4}{(\sqrt{2}\angle -45^\circ)^6} = \dfrac{5^4\cdot 2^2\angle 4\cdot 45^\circ}{2^3\angle 6\cdot(-45^\circ)} = \dfrac{312.5\angle 450^\circ}{} = \boxed{312.5\angle 90^\circ}$

$5+5j$ to polar form: $r = \sqrt{25+25} = \sqrt{50} = 5\sqrt{2}$



$\theta_{ref.} = \tan^{-1}\frac{5}{5} = 45^\circ$

$1-j$ to polar form: $r = \sqrt{1+1} = \sqrt{2}$



$\theta_{ref.} = \tan^{-1}\frac{-1}{1} = -45^\circ$

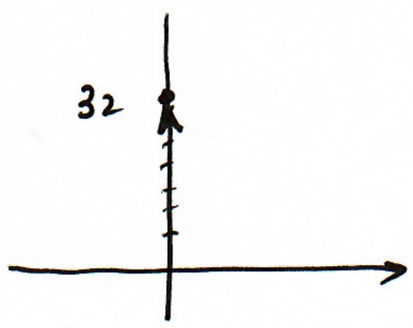
$\theta = -45^\circ$ or 315°

#68 $x^5 - 32j = 0$

$x^5 = 32j$

$x = \sqrt[5]{32j}$

$x = 2\sqrt[5]{j}$



let's convert $32j$ to polar form:

$r = \sqrt{0^2+(32)^2} = \sqrt{32^2} = 32$

$\tan^{-1}\frac{32}{0}$

$\theta = \frac{\pi}{2} = 45^\circ$

1st fifth root: $\sqrt[5]{32\angle 45^\circ} = 2\angle 9^\circ \approx 2 + 0.3j$

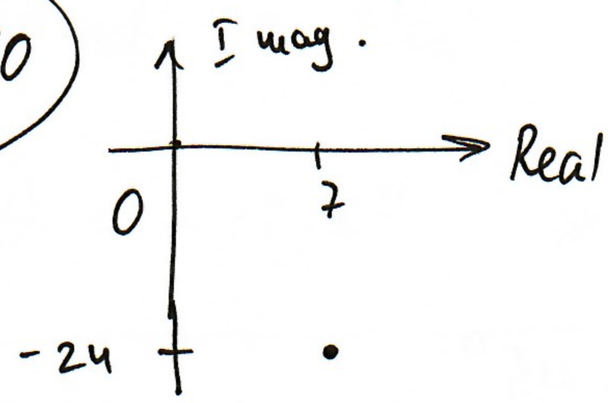
2nd fifth root: $\sqrt[5]{32\angle 45^\circ + 360^\circ} = 2\angle 81^\circ \approx 0.3 + 2j$

3rd fifth root: $\sqrt[5]{32\angle 45^\circ + 720^\circ} = 2\angle 153^\circ \approx -1.8 + 0.9j$

4th fifth root: $\sqrt[5]{32\angle 45^\circ + 1080^\circ} = 2\angle 225^\circ \approx -1.4 - 1.4j$

5th fifth root: $\sqrt[5]{32\angle 45^\circ + 1440^\circ} = 2\angle 297^\circ \approx 0.9 - 1.8j$

#70

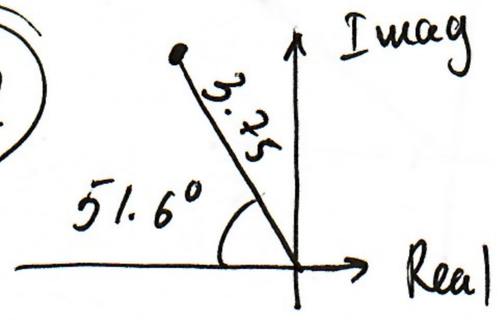


$7 - 24j = 25\angle -74^\circ$

$\theta_{ref.} = \tan^{-1}\frac{-24}{7} \approx -74^\circ$ $\quad \theta = -74^\circ$

$r = \sqrt{7^2 + (-24)^2} = \sqrt{625} = 25$

#72



$3.75\angle 51.6^\circ$

$3.75(\cos 51.6^\circ + j\sin 51.6^\circ) \approx 2.3 + 2.9j$