Pre-Calculus Homework #18 – Answer Key

1) $\dfrac{-1}{22x-33}+\dfrac{17}{11x+44}-\dfrac{6}{x-3}$

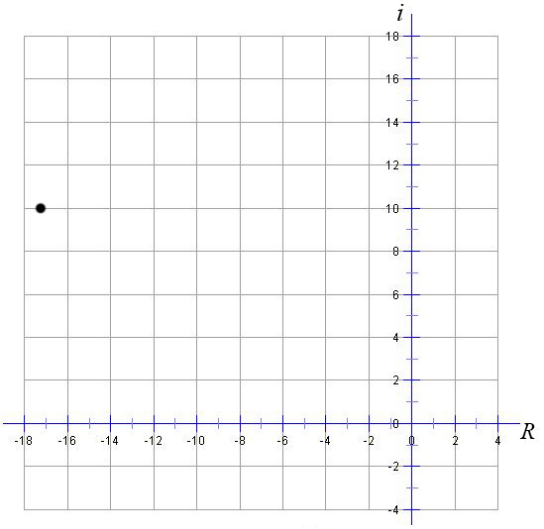
2) 85 on the 1st test 97 on the 2nd test 88 on the 3rd test

3) $3x-7+\dfrac{8}{x-15}-\dfrac{9}{x+2}$

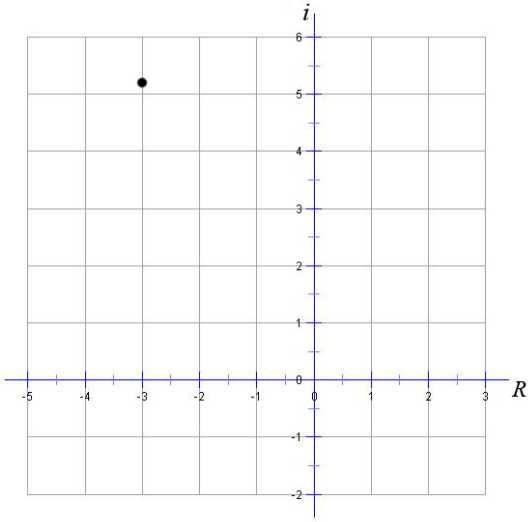
4) $a=-4,\quad b=3,\quad c=-2$

5) $\dfrac{5x-13}{x^2+4}-\dfrac{17}{x-6}$

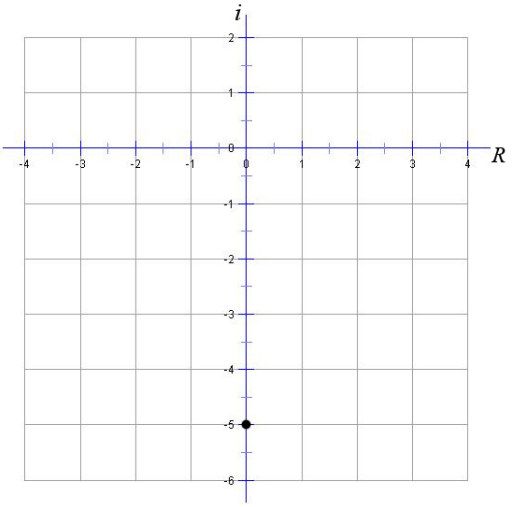
6) $\left|-10\sqrt{3}+10i\right|=20$ Polar form = $20(\cos 150^\circ + i\sin 150^\circ)$



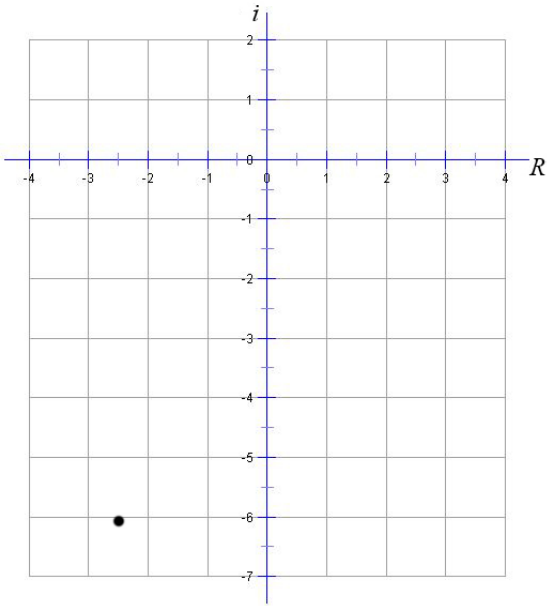
7) $\left|6(\cos 120^\circ + i\sin 120^\circ)\right|=6$ Rectangular form = $-3+3\sqrt{3}i$



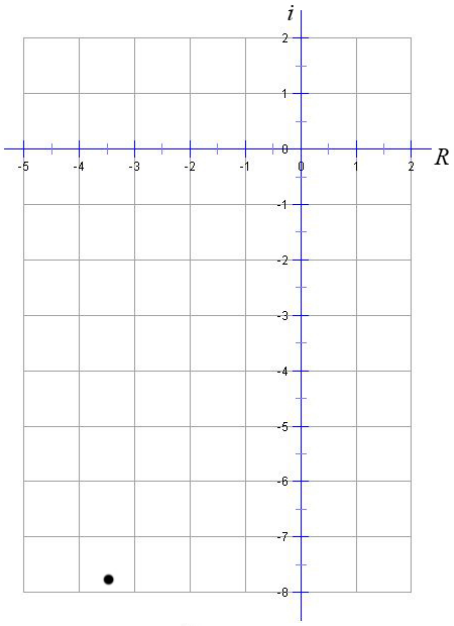
8) $\left|0-5i\right|=5$ Polar form = $5(\cos 270^\circ + i\sin 270^\circ)$



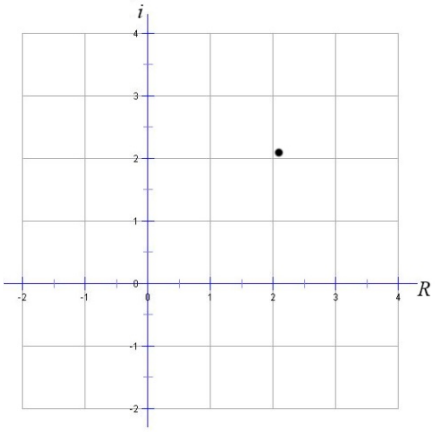
9) $\left|-7(\cos\frac{\pi}{3}+i\sin\frac{\pi}{3})\right|=7$ Rectangular form = $\frac{-7}{2}-\frac{7\sqrt{3}}{2}i$



10) $\left|\frac{-9}{2}-\frac{9\sqrt{3}}{2}i\right|=9$ Polar form = $9(\cos 240^\circ+i\sin 240^\circ)$



11) $\left|-3(\cos(\frac{-3\pi}{4})+i\sin(\frac{-3\pi}{4}))\right|=3$ Rectangular form = $\frac{3\sqrt{2}}{2}+\frac{3\sqrt{2}}{2}i$



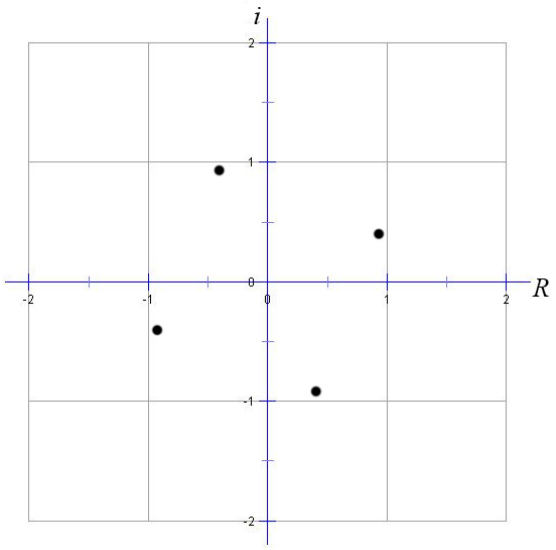
12) $2\sqrt{2}(\cos 105^\circ+i\sin 105^\circ)$ which gives you $1-\sqrt{3}+i+i\sqrt{3}$

13) $3(\cos 330^\circ+i\sin 330^\circ)$ which gives you $\frac{3\sqrt{3}-3i}{2}$

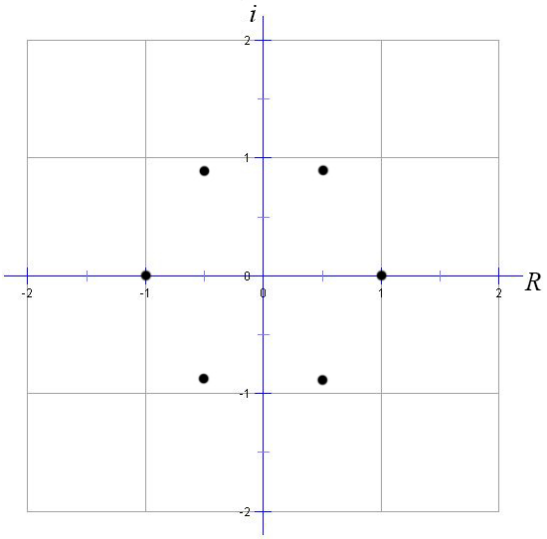
14) $32(\cos 30^\circ+i\sin 30^\circ)$

15) $\frac{1-\sqrt{3}i}{2}$

16) $\frac{\sqrt{\sqrt{2}+2}}{2}+i\frac{\sqrt{2-\sqrt{2}}}{2},\ \frac{-\sqrt{2-\sqrt{2}}}{2}+i\frac{\sqrt{\sqrt{2}+2}}{2},\ \frac{-\sqrt{\sqrt{2}+2}}{2}-i\frac{\sqrt{2-\sqrt{2}}}{2},\ \frac{\sqrt{2-\sqrt{2}}}{2}-i\frac{\sqrt{\sqrt{2}+2}}{2}$



17) $1(\cos 0^\circ + i\sin 0^\circ),\quad 1(\cos 60^\circ + i\sin 60^\circ),\quad 1(\cos 120^\circ + i\sin 120^\circ),$
$1(\cos 180^\circ + i\sin 180^\circ),\quad 1(\cos 240^\circ + i\sin 240^\circ),\quad 1(\cos 240^\circ + i\sin 240^\circ),$



18) $x=\sqrt{3}+i,\quad x=0+2i,\quad x=-\sqrt{3}+i,\quad x=-\sqrt{3}-i,\quad x=0-2i,\quad x=\sqrt{3}-i$

19) $x=\sqrt[5]{2}(\cos 42^\circ + i\sin 42^\circ),\quad x=\sqrt[5]{2}(\cos 114^\circ + i\sin 114^\circ),\quad x=\sqrt[5]{2}(\cos 186^\circ + i\sin 186^\circ),$
$x=\sqrt[5]{2}(\cos 258^\circ + i\sin 258^\circ),\quad x=\sqrt[5]{2}(\cos 330^\circ + i\sin 330^\circ)$

20) $x=\frac{3\sqrt{6}+3\sqrt{2}}{4}+i\frac{3\sqrt{6}-3\sqrt{2}}{4},\ x=\frac{3\sqrt{6}+3\sqrt{2}}{4}-i\frac{3\sqrt{6}-3\sqrt{2}}{4},\ x=\frac{-3\sqrt{6}-3\sqrt{2}}{4}+i\frac{3\sqrt{6}-3\sqrt{2}}{4},$
$x=\frac{-3\sqrt{6}+3\sqrt{2}}{4}+i\frac{3\sqrt{6}-3\sqrt{2}}{4},\ x=\frac{3\sqrt{6}-3\sqrt{2}}{4}+i\frac{3\sqrt{6}-3\sqrt{2}}{4},\ x=\frac{3\sqrt{6}-3\sqrt{2}}{4}-i\frac{3\sqrt{6}+3\sqrt{2}}{4},$
$x=\frac{-3\sqrt{6}-3\sqrt{2}}{4}+i\frac{3\sqrt{6}+3\sqrt{2}}{4},\ x=\frac{-3\sqrt{6}-3\sqrt{2}}{4}-i\frac{3\sqrt{6}+3\sqrt{2}}{4},\ x=\frac{3\sqrt{2}}{2}+i\frac{3\sqrt{2}}{2},$
$x=\frac{3\sqrt{2}}{2}-i\frac{3\sqrt{2}}{2},\ x=\frac{-3\sqrt{2}}{2}+i\frac{3\sqrt{2}}{2},\ x=\frac{-3\sqrt{2}}{2}-i\frac{3\sqrt{2}}{2}$