Math 95
Quiz 9

Solve each equation for x:

1) $\sqrt{x+3}-5=4$

$\sqrt{x+3}=9$

$(\sqrt{x+3})^2=(9)^2$

$x+3=81$

$x=78$

/10

Check

$\sqrt{78+3}-5 \stackrel{?}{=} 4$

$\sqrt{81}-5 \stackrel{?}{=} 4$

$9-5 \stackrel{?}{=} 4$

$4 = 4$ ✓

2) $(x-3)^{\frac{1}{2}}+2=1$

/10

$(x-3)^{1/2}=-1$ ← principle square root is never negative so no solution

but...

$((x-3)^{1/2})^2=(-1)^2$

$x-3=1$

$x=4$

check:

$(4-3)^{1/2}+2 \stackrel{?}{=} 1$

$(1)^{1/2}+2 \stackrel{?}{=} 1$

$1+2 \stackrel{?}{=} 1$

$3 \neq 1$ ←

so no solution

Let z= 3-i and w =2+i perform the following operations.

A) z+w

1/5 $= (3-i) + (2+i) = (3+2) + i(-1+1)$

$= 5$

B) z-w $= (3-i) - (2+i)$

1/5 $= (3-2) + i(-1-1)$

$= 1 - 2i$

C) z*w

1/5 $(3-i)(2+i) = 6 + 3i - 2i - i^2$

$= 6 + i - (-1)$

$= 7 + i$

D) w/z

1/5 $\frac{w}{z} = \frac{2+i}{3-i} \frac{(3+i)}{(3+i)} = \frac{6+2i+3i+i^2}{9-i^2} = \frac{5+5i}{10}$

$= \frac{5(1+i)}{10}$

$= \frac{(1+i)}{2} = \frac{1}{2} + \frac{1}{2}i$