Question #22120

Simplify and Solve:

1) $\frac{3i-10}{8i-5}$;

2) $\frac{11i^2+1}{-12i-8}$.

Solution

1) $\frac{3i-10}{8i-5}=\frac{(3i-10)(8i+5)}{(8i-5)(8i+5)}=\frac{24i^2+15i-80i-50}{64i^2-25}=\frac{-24-50-65i}{-64-25}=\frac{-74-65i}{-89}=\frac{74}{89}+\frac{65}{89}i;$

2) $\frac{11i^2+1}{-12i-8}=\frac{(-10)(-12i-8)}{(-12i-8)(-12i+8)}=\frac{-80+120i}{144i^2-64}=\frac{-80+120i}{-208}=\frac{80}{208}-\frac{120}{208}i=\frac{5}{13}-\frac{15}{26}i.$

Answer: 1) $\frac{3i-10}{8i-5}=\frac{74}{89}+\frac{65}{89}i;$

2) $\frac{11i^2+1}{-12i-8}=\frac{5}{13}-\frac{15}{26}i$.