Complex Numbers WS

Express as a product of a real number and i

1. $\sqrt{-9}$
2. $\sqrt{-49}$
3. $-2\sqrt{-1}$
4. $\sqrt{-\frac{4}{9}}$

Simplify

5. $\sqrt{-50} + \sqrt{-32} - \sqrt{-8}$
6. $\sqrt{9} \cdot \sqrt{-49}$
7. $(7 + 2i) - (4 - 3i)$
8. $(3 - 2i) + (9 - 4i)$
9. $2i(3 + 5i)$
10. $(3 + 2i)(2 + 3i)$
11. $(\sqrt{3} + 2i)^2$
12. What is the conjugate of $2 - 4i$?
13. What is the conjugate of $-2 - 5i$?
14. Simplify $\frac{5 + 3i}{2 + i}$
15. Simplify $\frac{8 + 3i}{3 - 2i}$
16. What is i^2?
17. What is i^3?
18. What is i^4?
19. What is i^5?
20. What is i^{4445}?
21. Find both members of the solution set if $x^2 - 2x + 5 = 0$
22. Find both members of the solution set if $x^2 - 2x + 2 = 0$
23. Find both members of the solution set if $x^2 + 6x + 25 = 0$
24. Find both members of the solution set if $x^2 - 4x + 9 = 0$

Answers

$(1)3i(2)7i(3) - 2i(4)\frac{3}{5}i(5)2i\sqrt{2} + 4i\sqrt{2} - 2i\sqrt{2} = 7i\sqrt{2}$
$(6)21i(7)3 + 2i(8)12 - 6i(9)6i + 10i_2 = -10 + 6i(10)13i$
$(11) - 1 + 4i\sqrt{3}(12)2 + 4i(13) - 2 + 2i(14)\frac{5}{13} + \frac{1}{5}i$

$(15)\frac{13}{18} + \frac{13}{25}i(16) - 1(17) - i(18)1(19)i(20)i(21)1 \pm 2i$
$(22)1 \pm i(23) - 3 \pm 4i(24)2 \pm i\sqrt{5}$