SOL Checkpoint Test

AII.17 The student will perform operations on complex numbers and express the results in simplest forms. Simplifying results will involve using patterns or the power of *i*.

1. Add $(8+5i)+(-13-6i)$

   A. $-5+i$
   B. $5-i$
   C. $-5-i$
   D. $5+i$

2. What is the conjugate of $-5+3i$?

   A. $-5-3i$
   B. $5-3i$
   C. $-3-5i$
   D. $-5+3i$

3. Subtract $(6-2i)-(-4-7i)$

   A. $2+9i$
   B. $10-5i$
   C. $10+5i$
   D. $2-9i$

4. Simplify i^{24}

   A. i
   B. -1
   C. $-i$
   D. 1

5. Simplify $\dfrac{3-i}{2+3i}$

   A. $\dfrac{6-11i+3i^2}{13}$
   B. $\dfrac{3-11i}{13}$
   C. $\dfrac{3-11i}{4-9i^2}$
   D. $\dfrac{3-11i}{-5}$

6. Multiply $(4+2i)(3-i)$

A. $14+2i$
B. $12+2i$
C. $14-2i$
D. $12-2i$

7. Simplify $\frac{5}{2-4i}$

A. $1+i$
B. $\frac{1+2i}{2}$
C. $\frac{-5(1+2i)}{6}$
D. $\frac{2}{1+2i}$

8. Simplify $i^9 \cdot i^3$

A. i
B. -1
C. $-i$
D. 1

9. Simplify $\frac{\sqrt{3}}{i}$

A. $-i\sqrt{3}$
B. $i\sqrt{3}$
C. $\sqrt{3}$
D. $-\sqrt{3}$

10. Simplify $(4-i\sqrt{2})(4+i\sqrt{2})$

A. 14
B. 16
C. 18
D. 20

11. Simplify $\frac{1+2i}{2-3i}$

A. $\frac{8+i}{7}$
B. $\frac{8+7i}{7}$
C. $-4+7i$
D. $\frac{-4+7i}{13}$

12. Simplify $\sqrt{-72}+\sqrt{-50}$

A. $11i\sqrt{2}$
B. $30i\sqrt{2}$
C. $i\sqrt{3}$
D. $-i\sqrt{3}$

13. Simplify $\sqrt{-\frac{3}{7}}$

A. $3i$
B. $\frac{3}{7}i$
C. $\frac{\sqrt{21}}{7}i$
D. $7i$

14. Simplify i^{33}

A. $-i$

B. i

C. -1

D. 1

15. Simplify $(5-3i)^2$

A. $16-30i$

B. 34

C. $34-30i$

D. 16

16. Which of the following statements is true?

A. $2+3i$ is a pure imaginary number.

B. The reciprocal of $3+i$ is $3-i$.

C. $(4+3i)(4-3i)=25$

D. $(2+3i)-(-2-3i)=0$