Name: _____

N.CN.A.3: Conjugates of Complex Numbers

1 What is the conjugate of $-2+3i$?
1) $-3+2i$
2) $-2-3i$
3) $2-3i$
4) $3+2i$

2 The conjugate of $7-5i$ is
1) $-7-5i$
2) $-7+5i$
3) $7-5i$
4) $7+5i$

3 What is the conjugate of $\frac{1}{2}+\frac{3}{2}i$?
1) $-\frac{1}{2}+\frac{3}{2}i$
2) $\frac{1}{2}-\frac{3}{2}i$
3) $\frac{3}{2}+\frac{1}{2}i$
4) $-\frac{1}{2}-\frac{3}{2}i$

4 The conjugate of the complex expression $-5x+4i$ is
1) $5x-4i$
2) $5x+4i$
3) $-5x-4i$
4) $-5x+4i$

5 What is the sum of $5-3i$ and the conjugate of $3+2i$?
1) $2+5i$
2) $2-5i$
3) $8+5i$
4) $8-5i$

6 When $-3-2i$ is multiplied by its conjugate, the result is
1) -13
2) -5
3) 5
4) 13

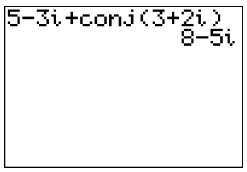
7 State the conjugate of $7-\sqrt{-48}$ expressed in simplest $a+bi$ form.

8 Multiply $x+yi$ by its conjugate, and express the product in simplest form.

9 Show that the product of $a+bi$ and its conjugate is a real number.

N.CN.A.3: Conjugates of Complex Numbers
Answer Section

1 ANS: 2 REF: 081024a2
2 ANS: 4 REF: 011111a2
3 ANS: 2 REF: 011213a2
4 ANS: 3 REF: 061219a2
5 ANS: 4



REF: 060810b
6 ANS: 4
$(-3-2i)(-3+2i) = 9-4i^2 = 9+4 = 13$

REF: 011512a2
7 ANS:
$7+\sqrt{-48} = 7+4i\sqrt{3}$

REF: 011730a2
8 ANS:
$(x+yi)(x-yi) = x^2 - y^2 i^2 = x^2 + y^2$

REF: 061432a2
9 ANS:
$(a+bi)(a-bi) = a^2 - abi + abi - b^2 i^2 = a^2 - b^2(-1) = a^2 + b^2$. Since a and b are real, their squares are real and the sum of their squares is real.

REF: 080122b