

Complex Numbers Worksheets

1. Find the real values of x and y in each of the following equations using the fact that if $a + bi = c + di$, then $a = c$ and $b = d$.

a) $5x + 3yi = 20 + 9i$

b) $2(5x + 9) = (10 - 3y)i$

c) $3(7 - 2x) - 5(4y - 3)i = x - 2(1 + y)i$

2. Evaluate $x^2 - 6x$ when $x = 3 - i$

3 Evaluate $4x^2 - 12x$ when $x = \frac{3}{2} - \frac{i}{2}$.

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1. Find the real values of x and y in each of the following equations using the fact that if $a + bi = c + di$, then $a = c$ and $b = d$.

a) $5x + 3yi = 20 + 9i$

$$\begin{array}{ll} 5x = 20 & 3yi = 9i \\ x = 4 & y = 3 \end{array}$$

b) $2(5x + 9) = (10 - 3y)i$

$$\begin{array}{ll} 2(5x + 9) + 0i = 0 + (10 - 3y)i & 0i = (10 - 3y)i \\ 2(5x + 9) = 0 & 10 - 3y = 0 \\ x = -\frac{9}{5} & y = \frac{10}{3} \end{array}$$

c) $3(7 - 2x) - 5(4y - 3)i = x - 2(1 + y)i$

$$\begin{array}{ll} 3(7 - 2x) = x & -5(4y - 3)i = -2(1 + y)i \\ 21 - 6x = x & -5(4y - 3) = -2(1 + y) \\ 21 = 7x & -20y + 15 = -2 - 2y \\ x = 3 & 17 = 18y \\ & y = \frac{17}{18} \end{array}$$

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$$-10$$

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$$-10$$

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