

ANSWER PRESENTATION TOOL

Algebra 2 - Student Edit

3

2 - Practice

2-46

ALL EVEN

Show Solu

ODD

$$\begin{aligned} 2. \sqrt{-64} &= \sqrt{64} \cdot \sqrt{-1} \\ &= 8i \end{aligned}$$

$$\begin{aligned} 4. \sqrt{-24} &= \sqrt{24} \cdot \sqrt{-1} \\ &= 2i\sqrt{6} \end{aligned}$$

$$\begin{aligned} 6. -3\sqrt{-49} &= -3\sqrt{49} \cdot \sqrt{-1} \\ &= -21i \end{aligned}$$

$$\begin{aligned} 8. 6\sqrt{-63} &= 6\sqrt{63} \cdot \sqrt{-1} \\ &= 18i\sqrt{7} \end{aligned}$$

10. Set the real parts equal to each other and the imaginary parts equal to each other.

$$3x = 27 \quad 6i = yi$$

$$x = 9 \quad y = 6$$

So, $x = 9$ and $y = 6$.

12. Set the real parts equal to each other and the imaginary parts equal to each other.

$$9x = -36 \quad -18i = 6yi$$

$$x = -4 \quad y = -3$$

So, $x = -4$ and $y = -3$.

14. Set the real parts equal to each other and the imaginary parts equal to each other.

$$-12x = 60 \quad yi = -13i$$

$$x = -5 \quad y = -13$$

So, $x = -5$ and $y = -13$.

16. Set the real parts equal to each other and the imaginary parts equal to each other.

$$15 = \frac{1}{2}x \quad -3yi = 2i$$

$$x = 30 \quad y = -\frac{2}{3}$$

So, $x = 30$ and $y = -\frac{2}{3}$.

$$\begin{aligned} 18. (9 + 5i) + (11 + 2i) &= (9 + 11) + (5 + 2)i \\ &= 20 + 7i \end{aligned}$$

$$\begin{aligned} 20. (2 - 15i) - (4 + 5i) &= (2 - 4) + (-15 - 5)i \\ &= -2 - 20i \end{aligned}$$

$$\begin{aligned} 22. (16 - 9i) - (2 - 9i) &= (16 - 2) + (-9 + 9)i \\ &= 14 \end{aligned}$$

$$\begin{aligned} 24. 16 - (2 - 3i) - i &= (16 - 2) + (3 - 1)i \\ &= 14 + 2i \end{aligned}$$

$$\begin{aligned} 26. -3 + (8 + 2i) + 7i &= (-3 + 8) + (2 + 7)i \\ &= 5 + 9i \end{aligned}$$

28. a. The additive inverse is $z_a = -1 - i$.

b. The additive inverse is $z_a = -3 + i$.

c. The additive inverse is $z_a = 2 - 8i$.

$$\begin{aligned} 30. 2i(7 - i) &= 14i - 2i^2 \\ &= 14i - 2(-1) \\ &= 2 + 14i \end{aligned}$$

$$\begin{aligned} 32. (7 + 5i)(8 - 6i) &= 56 - 42i + 40i - 30i^2 \\ &= 56 - 2i - 30(-1) \\ &= 86 - 2i \end{aligned}$$

$$\begin{aligned} 34. (-1 + 8i)(9 + 3i) &= -9 - 3i + 72i + 24i^2 \\ &= -9 + 69i + 24(-1) \\ &= -9 + 69i - 24 \\ &= -33 + 69i \end{aligned}$$

$$\begin{aligned} 36. (8 + 3i)^2 &= (8 + 3i)(8 + 3i) \\ &= 64 + 24i + 24i + 9i^2 \\ &= 64 + 48i + 9(-1) \\ &= 55 + 48i \end{aligned}$$

38. Squaring a complex number requires FOIL.

$$\begin{aligned}(4 + 6i)^2 &= (4 + 6i)(4 + 6i) \\ &= 16 + 24i + 24i + 36i^2 \\ &= 16 + 48i + 36(-1) \\ &= -20 + 48i\end{aligned}$$

40. The conjugate of $8 + i$ is $8 - i$.

$$\begin{aligned}(8 + i)(8 - i) &= 64 - 8i + 8i - i^2 \\ &= 64 - (-1) \\ &= 64 + 1 \\ &= 65\end{aligned}$$

42. The conjugate of $5 - 6i$ is $5 + 6i$.

$$\begin{aligned}(5 - 6i)(5 + 6i) &= 25 + 30i - 30i - 36i^2 \\ &= 25 - 36(-1) \\ &= 25 + 36 \\ &= 61\end{aligned}$$

44. The conjugate of $-1 - 9i$ is $-1 + 9i$.

$$\begin{aligned}(-1 - 9i)(-1 + 9i) &= 1 - 9i + 9i - 81i^2 \\ &= 1 - 81(-1) \\ &= 1 + 81 \\ &= 82\end{aligned}$$

46. The conjugate of $-7 + 4i$ is $-7 - 4i$.

$$\begin{aligned}(-7 + 4i)(-7 - 4i) &= 49 + 28i - 28i - 16i^2 \\ &= 49 - 16(-1) \\ &= 49 + 16 \\ &= 65\end{aligned}$$