

8.2

$$3a \quad 81^{-3/4} = \frac{1}{\sqrt[4]{81^3}} = \frac{1}{\sqrt[4]{3^4 \cdot 3^3}} = \frac{1}{3^3} = \frac{1}{27}$$

$$3b \quad 36^{-3/2}$$

$$3c \quad \left(\frac{64}{25}\right)^{-3/2}$$

$$3. \quad -16^{1/2} = -\sqrt{16} = -4$$

$$4. \quad (-16)^{1/2} = \sqrt{-16} = \sqrt{-1} \sqrt{16} = 4i$$

$$5. \quad (-32)^{1/5} = \sqrt[5]{-2^5} = -2$$

$$6. \quad (-32)^{2/5} = (-2)^2 = 4$$

$$7. \quad 4^{3/2} = \sqrt[2]{4^3} = 4\sqrt{4} = 8$$

$$8. \quad 6^{1/2} = \sqrt{6}$$

$$11. \quad 169^{1/2} = 13$$

$$15. \quad 16^{1/4} = 2^{4(1/4)} = 2$$

$$19. \quad (-27)^{1/3} = (-3^3)^{1/3} = -3$$

$$23. \quad 100^{3/2} = 10^{2(3/2)} = 10^3 = 1000$$

$$27. \quad -16^{5/2} =$$

31

35

39

43

$$47. (3m^4 + 2k^2)^{-2/3} = \sqrt[3]{(3m^4 + 2k^2)^2}$$

51.

55

$$59. \frac{\sqrt[3]{t^4}}{\sqrt[5]{t^4}} = t^{4/3 - 4/5} = t^{(20-12)/15} = t^{8/15} = \sqrt[15]{t^8}$$

61.

65

$$69. \frac{k^{1/3}}{k^{2/3} \cdot k^{-1}} = k^{1/3 - 2/3 + 1} = k^{4/3 - 2/3} = k^{2/3}$$

$$73. \frac{(x^{2/3})^2}{(x^2)^{7/3}} = \frac{x^{4/3}}{x^{14/3}} = x^{4/3 - 14/3} = x^{-10/3} = \frac{1}{x^{10/3}}$$

$$(x^{2/3})^2 \Rightarrow (x^{2/3} \cdot x^{2/3}) \Rightarrow x^{2/3 + 2/3}$$

$$77. \frac{p^{1/3} \cdot p^{7/10} \cdot p^{1/2}}{(p^3)^{1/5}} = p^{2/10 + 7/10 + 5/10 - 6/10} = p^{20/10} = p^2$$

$$81. \left(\frac{p^{-1/4} q^{-3/2}}{3^{-1} p^{-2} q^{-2/3}} \right)^{-2} = \frac{p^{1/2} q^3}{3^2 p^4 q^{4/3}} = \frac{q^{5/3}}{9 p^{7/2}}$$

44 $3i(4+9i)$

$$12i + 27i^2$$

$$12i + (27)(-1)$$

$$-27 + 12i$$

50. $3i(-3-i)^2$

$$3i(-3-i)(-3-i)$$

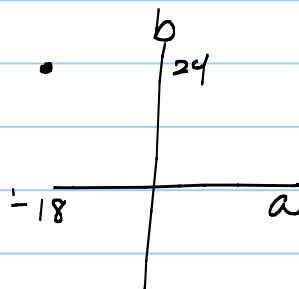
$$\downarrow (9 + 3i + 3i + i^2)$$

$$(9 + 6i - 1)$$

$$3i(8 + 6i) = 24i - 18$$

$$-18 + 24i$$

$$a + bi$$



62. $\frac{-8i(1-i)}{1+i(1-i)} = \frac{-8i + 8i^2}{1 - i + i - i^2} = \frac{8(-1) - 8i}{2} = \frac{-8 - 8i}{2} = \frac{-4 - 4i}{1}$

CAN NOT CANCEL ADD ENDS

IS $\frac{16}{64} = \frac{1}{4}$? FLUKE

$\frac{10+6}{60+4}$ NOT LEGIT!

$$64. \frac{-1+5i}{3+2i} \cdot \frac{(3-2i)}{(3-2i)} = \frac{-3+2i+15i-10i^2}{9-4i^2} = \frac{7+17i}{13}$$

$$\frac{7}{13} + \frac{17}{13}i$$