



## ACT COMPASS Preparation Worksheet

### Algebra: Exponents and Radicals

- $2m^2 \cdot 2m^3 = 4m^5$
- $2k^4 \cdot 4k = 8k^5$
- $4a^3b^2 \cdot 3a^{-4}b^{-3} = \frac{12}{ab}$
- $(4r^0)^4 = 256$
- $(2b^4)^{-1} = \frac{1}{2b^4}$
- $\frac{r^2}{2r^3} = \frac{1}{2r}$
- $\frac{3m^{-4}}{m^3} = \frac{3}{m^7}$
- $\frac{4m^4n^3p^3}{3m^2n^2p^4} = \frac{4m^2n}{3p}$
- $(x^{-5})^4 = \frac{1}{x^{20}}$
- $\frac{2x^2y^4 \cdot 4x^2y^4 \cdot 3x}{3x^{-3}y^2} = 8x^8y^6$
- $\frac{x}{(2x^0)^2} = \frac{x}{4}$
- $(a^{-3}b^{-3})^0 = 1$
- $\frac{2k^3 \cdot k^2}{k^{-3}} = 2k^8$
- $\frac{(2pm^{-1}q^0)^{-4} \cdot 2m^{-1}p^3}{2pq^2} = \frac{m^3}{16p^2q^2}$
- $\sqrt{125n} = 5\sqrt{5n}$
- $\sqrt{216k^4} = 6k^2\sqrt{6}$
- $\sqrt{147m^3n^3} = 7m \cdot n\sqrt{3mn}$
- $\sqrt{16u^4v^3} = 4u^2 \cdot v\sqrt{v}$
- $7^3\sqrt{96m^3} = 14m^3\sqrt{12}$
- $2\sqrt{125v} = 10\sqrt{5v}$
- $\sqrt[3]{432x^4y^7z^2} = 6xy^2\sqrt[3]{2xyz^2}$
- $6\sqrt{75mp^2q^3} = 30p \cdot q\sqrt{3mq}$
- $3\sqrt{6} - 4\sqrt{6} = -\sqrt{6}$
- $-10\sqrt{7} + 12\sqrt{7} = 2\sqrt{7}$
- $2\sqrt{6} - 2\sqrt{24} = -2\sqrt{6}$
- $3\sqrt{8} + 3\sqrt{2} = 9\sqrt{2}$
- $3\sqrt{18} - 2\sqrt{2} = 7\sqrt{2}$
- $-3\sqrt{2} + 3\sqrt{20} - 3\sqrt{8} = -9\sqrt{2} + 6\sqrt{5}$
- $-\sqrt{45} + 2\sqrt{5} - \sqrt{20} - 2\sqrt{6} = -3\sqrt{5} - 2\sqrt{6}$
- $3\sqrt{12} \cdot \sqrt{6} = 18\sqrt{2}$
- $-4\sqrt{15} \cdot -\sqrt{3} = 12\sqrt{5}$
- $-3\sqrt{7r^3} \cdot 6\sqrt{7r^2} = -126r^2\sqrt{r}$
- $-3\sqrt{3}(2 + \sqrt{6}) = -6\sqrt{3} - 9\sqrt{2}$
- $\sqrt{14x}(3 - \sqrt{2x}) = 3\sqrt{14x} - 2x\sqrt{7}$
- $(-2\sqrt{3} + 2)(\sqrt{3} - 5) = -16 + 12\sqrt{3}$
- $(5\sqrt{2x} + \sqrt{5})(-4\sqrt{2x} + \sqrt{5x}) = -40x + 5x\sqrt{10} - 4\sqrt{10x} + 5\sqrt{x}$



$$37. \frac{\sqrt{15}}{5\sqrt{20}} = \frac{\sqrt{3}}{10}$$

$$38. \frac{4}{\sqrt{5}} = \frac{4\sqrt{5}}{5}$$

$$39. \frac{\sqrt{3x^2y^3}}{4\sqrt{5xy^3}} = \frac{\sqrt{15x}}{20}$$

$$40. \frac{4x^3 - 3\sqrt{3x}}{3\sqrt{3x^2}} = \frac{4x^3\sqrt{3} - 9\sqrt{x}}{9x}$$

$$41. \frac{5}{-3 - 3\sqrt{3}} = \frac{5 - 5\sqrt{3}}{6}$$

$$42. \frac{\sqrt{5} + 3}{4 - \sqrt{5}} = \frac{7\sqrt{5} + 17}{11}$$