ACT COMPASS Preparation Worksheet

Algebra: Exponents and Radicals

1. $2m^2 \cdot 2\mathrm{m}^3$
2. $2k^4 \cdot 4k$
3. $4a^3b^2 \cdot 3a^{-4}b^{-3}$
4. $(4r^0)^4$
5. $(2b^4)^{-1}$
6. $\frac{r^2}{2r^3}$
7. $\frac{3m^{-4}}{m^3}$
8. $\frac{4m^4n^3p^3}{3m^2n^2p^4}$
9. $(x^{-5})^4$
10. $\frac{2x^2y^4 \cdot 4x^2y^4 \cdot 3x}{3x^{-3}y^2}$
11. $\frac{x}{(2x^0)^2}$
12. $(a^{-3}b^{-3})^0$
13. $\frac{2k^3 \cdot k^2}{k^{-3}}$
14. $\frac{(2pm^{-1}q^0)^{-4} \cdot 2m^{-1}p^3}{2pq^2}$
15. $\sqrt{125n}$
16. $\sqrt{216k^4}$
17. $\sqrt{147m^3n^3}$
18. $\sqrt{16u^4v^3}$
19. $7\sqrt[3]{96m^3}$
20. $2\sqrt{125v}$
21. $\sqrt[3]{432x^4y^7z^2}$
22. $6\sqrt{75mp^2q^3}$
23. $3\sqrt{6} - 4\sqrt{6}$
24. $-10\sqrt{7} + 12\sqrt{7}$
25. $2\sqrt{6} - 2\sqrt{24}$
26. $3\sqrt{8} + 3\sqrt{2}$
27. $3\sqrt{18} - 2\sqrt{2}$
28. $-3\sqrt{2} + 3\sqrt{20} - 3\sqrt{8}$
29. $-\sqrt{45} + 2\sqrt{5} - \sqrt{20} - 2\sqrt{6}$
30. $3\sqrt{12} \cdot \sqrt{6}$
31. $-4\sqrt{15} \cdot -\sqrt{3}$
32. $-3\sqrt{7r^3} \cdot 6\sqrt{7r^2}$
33. $-3\sqrt{3}(2 + \sqrt{6})$
34. $\sqrt{14x}(3 - \sqrt{2x})$
35. $(-2\sqrt{3} + 2)(\sqrt{3} - 5)$
36. $(5\sqrt{2x} + \sqrt{5})(-4\sqrt{2x} + \sqrt{5x})$
37. $\frac{\sqrt{15}}{5\sqrt{20}}$

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

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

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

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

42. $\frac{\sqrt{5}+3}{4-\sqrt{5}}$