# 6-1 Skills Practice

Name Master Ee
Date _____ Block ____

**Simplify each expression. Circle your final answer.**

*If in doubt, factor it out!*

1. $\frac{2x^2}{3y} \cdot \frac{x}{2y^2}$ $\boxed{\frac{x^3}{3y3}}$

2. $\left(\frac{3r^3}{-x^2}\right)^2$ $\boxed{\frac{9r^6}{x^4}}$

3. $\frac{2x^5}{y^3}\left(\frac{y^2}{2x^3}\right)^{-3}$

$\frac{2x^5}{y^3}\left(\frac{2x^3}{y^2}\right)^3$

$\frac{2x^5}{y^3} \cdot \frac{8x^9}{y^6} = \boxed{\frac{16x^{14}}{y^9}}$

4. $\frac{(ab^3z^{-2})^3}{(ab^{-2}z^3)^2}$

$\frac{a^3b^9z^{-6}}{a^2b^{-4}z^6} = \boxed{\frac{ab^{13}}{z^{12}}}$

5. $\left(\frac{a}{b^2}\right)^{-1}\left(\frac{a^2}{b}\right)^{-2}$

$\frac{b^2}{a}\left(\frac{b}{a^2}\right)^2$

$\frac{b^2 \cdot b^2}{a \cdot a^4} = \boxed{\frac{b^4}{a^5}}$

6. $\frac{(pq^{-2})^{-1}}{(p^2q)^{-2}}$

$\frac{p^{-1}q^2}{p^{-4}q^{-2}}$ $\frac{q^2 \cdot q^2 p^4}{p}$

$\boxed{p^3q^4}$

7. $\left(\frac{x^{-2}}{y^{-3}}\right)^{-2}\left(\frac{x^{-3}}{y^{-2}}\right)^2$

$\frac{x^4}{y^6} \cdot \frac{x^{-6}}{y^4} = \frac{x^4y^4}{y^6x^6} = \boxed{\frac{1}{x^2y^2}}$

8. $\left(\frac{2x^3y}{3wb}\right)^2\left(\frac{w^2b^2}{x^5y^2}\right)^3$

$\frac{4x^6y^2}{9w^2b^2} \cdot \frac{w^6b^6}{x^{15}y^6} = \boxed{\frac{4b^4w^4}{9x^9y^4}}$

9. $\frac{7c^{-2}t^{-4}r^0}{3^{-2}d^{-3}}$ $\frac{7 \cdot 3^2 \cdot d^3}{c^2t^4} = \boxed{\frac{63d^3}{c^2t^4}}$

10. $\left(\frac{x^{-1}m^{-4}}{x^{-2}m}\right)^2\left(\frac{x^2m^{-1}}{x^4m^2}\right)^3$

$\frac{x^{-2}m^{-8}}{x^{-4}m^2} \cdot \frac{x^6m^{-3}}{x^{12}m^6}$

$\frac{x^4m^{-11}}{x^8m^8}$

$= \boxed{\frac{1}{x^4m^{19}}}$

# 6-1 Skills Practice Continued

**Simplify. Assume that no variable equals 0.**

1. $b^4 \cdot b^3$ $b^7$

2. $c^5 \cdot c^2 \cdot c^2$ $c^9$

3. $a^{-4} \cdot a^{-3}$ $a^{-7} = \frac{1}{a^7}$

4. $x^5 \cdot x^{-4} \cdot x$ $x^2$

5. $(2x)^2(4y)^2$ $4x^2(16y^2) = 64x^2y^2$

6. $-2gh(g^3h^5)$ $-2g^4h^6$

7. $10x^2y^3(10xy^8)$ $100x^3y^{11}$

8. $\frac{24wz^7}{3w^3z^5}$ $\frac{8z^2}{w^2}$

9. $\frac{-6a^4bc^8}{36a^7b^2c}$ $-\frac{c^7}{6a^3b}$

10. $\frac{-10pt^4r}{-5p^3t^2r}$ $\frac{2t^2}{p^2}$

11. $(g + 5) + (2g + 7)$ $3g+12$

12. $(5d + 5) - (d + 1)$ $-d-1$ $4d+4$

13. $(x^2 - 3x - 3) + (2x^2 + 7x - 2)$ $3x^2+4x-5$

14. $(-2f^2 - 3f - 5) + (-2f^2 - 3f + 8)$ $-2f^2-3f+8$ $-4f^2-6f+3$

15. $-5(2c^2 - d^2)$ $-10c^2+5d^2$

16. $x^2(2x + 9)$ $2x^3+9x^2$

17. $(a - 5)^2$ $a^2-10a+25$

18. $(2x - 3)(3x - 5)$ $-9x$ $-10x$ $6x^2-19x+15$

19. $(r - 2t)(r + 2t)$ $r^2-4t^2$

20. $(3y + 4)(2y - 3)$ $6y$ $-9y$ $6y^2-y-12$

21. $(3 - 2b)(3 + 2b)$ $9-4b^2$ $-4b^2+9$ (better)

22. $(3w + 1)^2$ $9w^2+6w+1$