

Algebra I
10.2 Worksheet #2
Properties of Exponents

NAME: _____
DATE: _____ HOUR: _____

Circle all problems that are correct. Cross-out all problems that are incorrect.

Start where indicated. Move horizontally or vertically only to a square whose expression has been evaluated correctly and is in simplest form.

START

$(3xy^3)^3$ $= 27x^3y^9$	$3v^2w^4 \cdot 4vw^6$ $= 12v^2w^{10}$	$\frac{39y^6x^4}{-13yx}$ $= 3y^5x^3$	$(-3t^4s^3)^3$ $= 27t^{12}s^9$	$\frac{16r^6s^{12}}{4rs^9}$ $= 4r^6s^3$	$-5y^2g^4 \cdot 4yg^6$ $= -20y^3g^{24}$
$4x^6 \cdot 2m^3$ $= 8m^3x^6$	$-9m^2n \cdot 4m^3n^2$ $= -36m^5n^2$	$3j^4(-2jk^3)$ $= -6j^5k^3$	$\frac{84k^{14}t^{29}}{7k^{11}t^{16}}$ $= 12k^3t^{13}$	$-4n^6p^8(3np^4)$ $= -12n^7p^{12}$	$\frac{18t^6v^5}{-9t^4v}$ $= 2t^2v^4$
$\frac{21v^4w^6}{7vw^4}$ $= 3v^3w^2$	$5bc^4 \cdot 7bc^6$ $= 12b^2c^{10}$	$(-4t^6v^7)^3$ $= -64t^{18}v^{21}$	$\frac{f^9g^8h^7}{fg^2h^6}$ $= f^9g^6h$	$(7y^3w^6)^3$ $= 343y^9w^{18}$	$-4d^2c^4 \cdot 3d^6c^7$ $= -12d^{12}c^{28}$
$(-3y^6)^3$ $= -27y^{18}$	$(-2ab^2)^2(-3a^2b)^3$ $= -108a^8b^7$	$\frac{2^3d^5e^3}{2de^4}$ $= \frac{4d^4}{e}$	$(4m^9n^3)^4$ $= 256m^{36}n^{12}$	$9b^3c^2 \cdot -7bc^4$ $= -63b^4c^6$	$\frac{-108p^{14}q^9}{9p^{12}q^3}$ $= -12p^2q^3$
$\frac{14j^{19}}{-7j^6}$ $= 2j^{13}$	$(3m^4n^6) \cdot (-2m^3n^7)$ $= \frac{1}{9}m^7n^{13}$	$(3j^6k^9)^4$ $= 12j^{24}k^{36}$	$12p^6q^2 \cdot -3pq^3$ $= -36p^7q^6$	$\frac{85t^{12}s^4}{5t^6s}$ $= 17t^6s^3$	$(-9m^4t^9)^2$ $= -81m^8t^{18}$
$(12y^3)^2$ $= 24y^6$	$(-8s^4)(6t^3s^5)$ $= -48s^9t^3$	$(-6m^3n^4)^3$ $= -216m^9n^{12}$	$\frac{96x^6y^3}{-4xy^2}$ $= -24x^5y$	$(5j^6k^2)^3$ $= 125j^{18}k^6$	$\frac{27d^9e^4}{-9de^2}$ $= 3d^8e^2$
$9md^2 \cdot 3jd$ $= 27m^2d^3$	$\frac{-56b^6c^4}{-8bc^2}$ $= 7b^5c^2$	$(-3t^{14}s^3)^3$ $= -27t^{42}s^9$	$17m^6n \cdot 3mn^4$ $= 51m^7n^4$	$\frac{-25v^9w^6}{5v^2w}$ $= -5v^7w^6$	$(6r^4s^7)^3$ $= 18r^{12}s^{21}$
$\frac{56m^{12}n^4}{-8m^5n}$ $= 7m^5n$	$(j^6g^4)^6$ $= j^{36}g^{24}$	$\frac{r^{29}s^{31}}{t^4s^{16}}$ $= \frac{r^{29}s^{15}}{t^4}$	$12d^5e^6 \cdot (-9d^2e^{12})$ $= -108d^7e^{18}$	$(-3f^4)^4$ $= 81f^{16}$	$\frac{75g^6h^9}{-25g^4h^3}$ $= -3g^2h^6$
$4a^3b^9 \cdot -2ab^6$ $= -8a^3b^3$	$\frac{63a^7z^{12}}{-9a^6z^7}$ $= -7a^{13}z^5$	$(-7c^9m^{10})^4$ $= -2401c^{36}m^{40}$	$\frac{57m^6t^4}{-3mt^3}$ $= -19m^4t$	$(6f^3t^4)^5$ $= 30f^{15}t^{20}$	$-4b^4c^2 \cdot -8a^2b^6$ $= 32a^2b^{10}c^2$

FINISH

Simplify each expression. Place the answer in the puzzle.

Across

- 1. 17^3 **4913**
- 4. $2^2 \cdot 11^2$
- 6. $\frac{2^8}{2^2}$
- 8. 4^3
- 9. $\frac{10^7}{10^6}$
- 10. $2^6 \cdot 5^3$
- 11. $\frac{14^9}{14^8}$
- 12. $\frac{7^6}{7^4}$
- 13. $\frac{2^8}{2^7} \cdot 273$
- 16. $\frac{3^4}{3^2} \cdot \frac{7^5}{7^3}$
- 18. $2^4 \cdot 7^2$
- 21. $\frac{3^6}{3^4} \cdot \frac{19^{17}}{19^{15}}$
- 24. $\frac{5^6}{5^4} \cdot 41$
- 26. $\frac{14^{16}}{14^{14}}$
- 27. $2^3 \cdot 7$
- 30. $\frac{5^7}{5^6} \cdot \frac{37^3}{37^2}$
- 32. $2^3 \cdot 5^4$
- 33. $2 \cdot 3 \cdot \frac{141^{11}}{141^{10}}$
- 35. $3^3 \cdot 5 \cdot \frac{7^3}{7^2}$
- 36. $\frac{3^9}{3^8} \cdot 2123$
- 38. $2^5 \cdot \frac{203^4}{203^3}$
- 39. $\frac{2^{10}}{2^2}$
- 40. $2 \cdot 3^2 \cdot 5$

Down

- 2. 31^2 **961**
- 3. 12^2
- 4. $2^4 \cdot 2^8$
- 5. $2^5 \cdot \frac{3^9}{3^8} \cdot \frac{5^7}{5^6}$
- 6. $2^3 \cdot 3 \cdot 5^2$
- 7. $2^3 \cdot 5$
- 9. $\frac{12^6}{12^4}$
- 13. 2^9
- 14. $2^4 \cdot 15$
- 15. $5^2 \cdot \frac{11^{13}}{11^{12}}$
- 17. $2^2 \cdot \frac{109^3}{109^2}$
- 19. $\frac{5^4}{5^3} \cdot 163$
- 20. 3^4
- 22. $3^2 \cdot 5$
- 23. $2^5 \cdot \frac{3^6}{3^5}$
- 25. $\frac{2^7}{2^6} \cdot 139$
- 28. $2^3 \cdot \frac{137^2}{137}$
- 29. $\frac{2^4}{2^3} \cdot 3^3$
- 31. $\frac{10^4}{10^3} \cdot 589$
- 32. $2^3 \cdot 67$
- 33. $2^2 \cdot \frac{3^9}{3^8} \cdot 71$
- 37. $\frac{3^4}{3^3} \cdot 23$

1	4	2	9	3	1	3		4		5		6	7
		8	6				9			10			
		11	1				12						
					13					14			15
		16	17					18	19				
20										24		25	
26													
					28				29		30		31
32								33		34			
					35					36		37	
38								39				40	

evaluate
all
expressions