

# Algebra I

## 9.5 Worksheet #2

### Properties of Exponents

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_ HOUR: \_\_\_\_\_

**Simplify.**

1.  $(3a^2)(4b^3)$  \_\_\_\_\_
2.  $(10x)(3x^2)$  \_\_\_\_\_
3.  $(-4p^3)(2pq)$  \_\_\_\_\_
4.  $\frac{-16xy^3}{-4x^3y}$  \_\_\_\_\_
5.  $(2a)^3$  \_\_\_\_\_
6.  $(3x^3)^2$  \_\_\_\_\_
7.  $5(4y)^2$  \_\_\_\_\_
8.  $7(b^2)^3$  \_\_\_\_\_
9.  $\left(\frac{t}{2}\right)^4$  \_\_\_\_\_
10.  $\left(\frac{2w^2}{3}\right)^5$  \_\_\_\_\_
11.  $\left(\frac{k^3}{3}\right)^4$  \_\_\_\_\_
12.  $\left(\frac{2b^4c^2}{5}\right)^2$  \_\_\_\_\_
13.  $(2.5y^2)^3$  \_\_\_\_\_
14.  $0.61(3c^3)^4$  \_\_\_\_\_
15.  $(r^m)^n$  \_\_\_\_\_
16.  $\left(\frac{x}{y}\right)^5$  \_\_\_\_\_
17.  $\left(\frac{a}{b}\right)^n$  \_\_\_\_\_
18.  $\left(\frac{x^m}{y^2}\right)^3$  \_\_\_\_\_
19.  $f^4 \cdot f^4$  \_\_\_\_\_
20.  $r^9 \cdot r^2$  \_\_\_\_\_
21.  $(a^4)^2$  \_\_\_\_\_
22.  $(b^3)^7$  \_\_\_\_\_
23.  $\frac{x^3}{x^2}$  \_\_\_\_\_
24.  $m^4 \cdot \frac{m^2}{m^3}$  \_\_\_\_\_
25.  $m^4 \cdot m^5$  \_\_\_\_\_
26.  $m^3 \cdot m^5$  \_\_\_\_\_
27.  $(r^3)^2 \cdot r^4$  \_\_\_\_\_
28.  $q^4 \cdot (q^3)^5$  \_\_\_\_\_
29.  $(t^3)^3 \cdot (t^2)^4$  \_\_\_\_\_
30.  $\frac{d^7}{d^3}$  \_\_\_\_\_
31.  $\frac{w^5(w^2)}{w^3}$  \_\_\_\_\_
32.  $\frac{(w^4)^3}{w^2}$  \_\_\_\_\_

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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

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

FINISH