

Key

EXPONENT WORKSHEET

FIND THE VALUE OF EACH EXPRESSION:

- 1) $5^5 = 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 = 25 \cdot 25 = 25 \cdot 25 = 625$
- 2) $2^{11} = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 2048$
- 3) $6^3 = 6 \cdot 6 \cdot 6 = 36 \cdot 6 = 216$
- 4) $9^3 = 9 \cdot 9 \cdot 9 = 81 \cdot 9 = 729$
- 5) $100^2 = 100 \cdot 100 = 10000$
- 6) $6^5 = 6 \cdot 6 \cdot 6 \cdot 6 \cdot 6 = 36 \cdot 36 = 1296$
- 7) $10^7 = 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10 = 10000000$
- 8) $3^5 = 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 = 9 \cdot 9 \cdot 3 = 81 \cdot 3 = 243$
- 9) $4^8 = 4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 = 16 \cdot 16 \cdot 16 \cdot 16 = 256 \cdot 256 = 65536$
- 10) $12^4 = 12 \cdot 12 \cdot 12 \cdot 12 = 144 \cdot 144 = 20736$
- 11) $16^2 = 16 \cdot 16 = 256$
- 12) $27^1 = 27$

SIMPLIFY EACH PRODUCT:

- 13) $10^{12} \cdot 10^{35} = 10^{47}$
- 14) $a^7 \cdot a^{12} = a^{19}$
- 15) $c^3 \cdot c^8 = c^{11}$
- 16) $d^7 \cdot d^9 = d^{16}$
- 17) $x^{2e} \cdot x^{8e} = x^{10e}$
- 18) $w^{103} \cdot w^{1030} = w^{1133}$
- 19) $a^6 \cdot b^5 = a^6 b^5$
- 20) $10^a \cdot 10^b = 10^{a+b}$
- 21) $g^{12} \cdot g^{19} \cdot g^{11} = g^{42}$

SIMPLIFY EACH PRODUCT:

- 22) $(2x^2)(4x^3y^2) = 8x^5y^2$
- 23) $(-3a^2b)(6ab^4c) = -18a^3b^5c$
- 24) $(7q^5)(12q^3r^5) = 84q^8r^5$

SIMPLIFY EACH EXPRESSION:

- 25) $(x^2)^3 = x^6$
- 26) $(a^7)^5 = a^{35}$
- 27) $(y^{13})^4 = y^{52}$
- 28) $(w^{-21})^{-15} = w^{315}$
- 29) $(5^2)^3 = 5^6$
- 30) $(23^7)^8 = 23^{56}$
- 31) $(-y^5)^4 = y^{20}$
- 32) $(4y^3)^2 = 4^2 y^6 = 16y^6$

EVALUATE EACH $X = 5$, $Y = -1$, AND $Z = 4$

33) $y^4 =$

$(-1)^4 = 1$

$-1 \cdot -1 \cdot -1 \cdot -1$
 $\vee \quad \vee \quad \vee \quad \vee$
 $1 \quad 1 \quad 1 \quad 1$

34) $3x^3 =$

$3(5^3)$
 $3(125)$
 375

$5 \cdot 5 \cdot 5$
 \vee
 $25 \cdot 5$
 \vee
 125
 $\times 3$
 \hline
 375

35) $2y^2 =$

$2(-1)^2$
 $2(1)$
 2

36) $z^2 =$

4^2
 16

$4 \cdot 4$
 \vee
 16

37) $(yz)^2 =$

$(-1 \cdot 4)^2 =$
 $(-4)^2 =$
 16

$-4 \cdot -4$
 \vee
 16

38) $(yx)^3 =$

$(-1 \cdot 5)^3 =$
 $(-5)^3 =$
 -125

39) $x^2z^2 =$

$5^2 \cdot 4^2 =$
 $25 \cdot 16 =$
 400

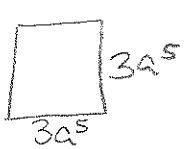
40) $y^5 =$

$(-1)^5 =$
 -1

$-1 \cdot -1 \cdot -1 \cdot -1 \cdot -1$
 $\vee \quad \vee \quad \vee \quad \vee \quad \vee$
 $1 \quad 1 \quad 1 \quad 1 \quad 1$
 $\vee \quad \vee \quad \vee \quad \vee \quad \vee$
 -1

41) What is the area of a square with the length of a side equaling $3a^5$?

$A = S^2$
 $A = L \times W$



$(3a^5)^2$
 $3^2 a^{10}$
 $9a^{10}$

$3a^5 \cdot 3a^5$
 $9a^{10}$

42) What is the area of the rectangle with the width of $6x^2$ and the length of $12x^3$?

$A = L \times W$



$6x^2 \cdot 12x^3 =$
 $72x^5$

12
 $\times 6$
 \hline
 72