SIMPLIFYING EXPONENTS

State whether each of the following is true or false.

(1.1) $5^2 \times 5^3 = 5^{2+3}$

(1.2) $5^2 \times 5^3 = 5^{2\times 3}$

(1.3) $5^2 + 5^3 = 5^{2+3}$

(1.4) $(2^2)^3 = 2^{2+3}$

(1.5) $5^3 \times 6^3 = (5 \times 6)^3$

(1.6) $4^6 \div 4^3 = 4^{6\div 3}$

(1.7) $4^6 \div 4^3 = 4^{6-3}$

(1.8) $4^6 - 4^3 = 4^{6-3}$

(1.9) $(8 \div 4)^3 = 3^{8\div 4}$

(1.10) $7^{2+3} = 7^2 \times 7^3$

(1.11) $2^5 \times 3^5 = 5^{2+3}$

(1.12) $4^2 \times 2^2 = 2^{4+2}$

(1.13) $2^5 + 3^5 = (2+3)^5$

(1.14) $(2^3)^2 = 2^{3\times 2}$

(1.15) $(5^3)^2 = (5^2)^3$

(1.16) $6^4 \div 3^4 = (6 \div 3)^4$

(1.17) $8^2 - 3^2 = (8-3)^2$

(1.18) $7^{3\times 2} = (7^3)^2$

Simplify the following. Express your answers in exponent form.

(1.19) $11^3 \times 11^4$

(1.20) $(18^4)^3$

(1.21) $\dfrac{7^6}{7^4}$

(1.22) $2^2 \times 2^5 \times 2^6$

(1.23) $(7^2 \times 7^3)^5$

(1.24) $\dfrac{5^5 \times 5^5}{5^6}$

(1.25) $7^4 \times 11^2 \times 11^5 \times 7^2$

(1.26) $\dfrac{3^6 \times 3^5}{2^4 \times 2^5}$

(1.27) $\dfrac{17^5}{7^2 \times 7^5 \times 17^3}$

(1.28) $\dfrac{7^9 \times 2^5}{2^4 \times 7^2}$

(1.29) $(5^6 \times 5^2)^3$

(1.30) $\dfrac{(3^2)^3 \times 4^6}{2^6}$

Simplify the following and express your answers using positive exponents.

(1.31) $11^{-3} \times 11^5$

(1.32) $5^{-5} \times 5^2$

(1.33) $7^{-2} \times 7^0$

(1.34) $\dfrac{2^2 \times 2^{-6}}{2^3}$

(1.35) $\dfrac{5^{-10}}{5^2 \times 5^4}$

(1.36) $(5^8 \times 5^{-4})^{-3}$

(1.37) $(7^{-2})^{-3}$

(1.38) $(3^4 \times 3^0)^3$

(1.39) $\dfrac{3^{-4}}{3^{-6}}$

(1.40) $\dfrac{5^0}{5^4}$