-Name Key!

Chapter 7 Test Review – Part I
NO CALCULATOR!

This test review covers the portion of the test that you will NOT be able to use a calculator on. You should complete this review without the use of a calculator, but you may want to use your calculator to double-check your answers.

✳ *Simplify the following. Your answers should be whole numbers or simple fractions with only positive exponents.*

1) $-(z^4)^3 = \boxed{-z^{12}}$

2) $(a^2b^3)^5 = \boxed{a^{10}b^{15}}$

3) $(4x^3)^2 = 4^2x^6 = \boxed{16x^6}$

4) $(-3m^5)^4 = (-3)^4 m^{20} = \boxed{81m^{20}}$

5) $\left(\frac{3}{2}\right)^{-3} = \left(\frac{3^{-3}}{2^{-3}}\right) = \frac{2^3}{3^3} = \boxed{\frac{8}{27}}$

6) $\left(\frac{4}{5}\right)^{-2} = \left(\frac{4^{-2}}{5^{-2}}\right) = \frac{5^2}{4^2} = \boxed{\frac{25}{16}}$

7) $\left(\frac{2k}{3}\right)^2 = \frac{2^2k^2}{3^2} = \boxed{\frac{4k^2}{9}}$

8) $(-3x)^{-2} = (-3)^{-2}x^{-2} = \frac{1}{(-3)^2x^2} = \boxed{\frac{1}{9x^2}}$

9) $64^{2/3} = (64^{1/3})^2 = 4^2 = \boxed{16}$
16 → 4 4; 4 → 2 2

10) $16^{3/4} = (16^{1/4})^3 = 4^3 = \boxed{64}$
16 → 8 2; 8 → 4 2; 4 → 2 2

11) $9^{-1/2} = 3 \rightarrow \boxed{1/3}$
3 3

12) $8^{-2/3} = (8^{1/3})^2 = 2^2 = 4 \rightarrow \boxed{1/4}$
2 4; 4 → 2 2

13) $\frac{m^{-1/5}}{m^{3/5}}$ Subtract $= m^{-4/5} = \boxed{\frac{1}{m^{4/5}}}$

14) $\frac{d^{2/3}}{d^{8/3}}$ Subtract $= d^{-2} = \boxed{\frac{1}{d^2}}$

Solve each equation. Solutions should be written as whole numbers or simple fractions.

15) $b^{2/3} = 9$

$(b^{2/3})^{3/2} = 9^{3/2}$

$(9^{1/2})^3 = 3^3 = 27$ (3)(3)

$b = 27$

16) $h^{1/4} = -2$

$(h^{1/4})^4 = (-2)^4$

$\underbrace{-2 \cdot -2}_{4} \cdot \underbrace{-2 \cdot -2}_{4} = 4 \cdot 4 = 16$

$h = 16$

17) $x^{-2/5} = 4$

$(x^{-2/5})^{-5/2} = 4^{-5/2}$

$(4^{\frac{1}{2}})^5 = 2^5 = 32 \rightarrow 1/32$ (2)(2) $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$

$X = 1/32$

18) $m^{-3/4} = 27$

$(m^{-3/4})^{-4/3} = 27^{-1/3}$

$(27^{1/3})^4 = 3^4 = 81 \rightarrow 1/81$ 9 (3) (3)(3) $3 \cdot 3 \cdot 3 \cdot 3$

$m = 1/81$

19) $n^5 = 32$

$(n^5)^{1/5} = 32^{1/5}$

32 = 2
16 (2)
8 (2)
4 (2)
(2)(2)

$n = 2$

20) $2p^3 + 4 = 58$

$-4 \quad -4$

$\frac{2p^3}{2} = \frac{54}{2}$

$p^3 = 27$

$(p^3)^{1/3} = 27^{1/3}$

$27^{1/3} = 3$
9 (3)
(3)(3)

$p = 3$