

HW42

P270 #1, 3, 4 & WKST

1. $a \in j$, $b \in d$, $c \in i$, $f \in h$,
 e , g

3. a) $a^{1/0}$ b) $b^{8/10}$ c) $\frac{1}{c^{1/2}} = c^{-1/2}$

d) $(d^{1/5})^7 = d^{7/5}$

4. a) $(a^{1/4} = 4.2)^6$

$a = 4.2^6 = \boxed{5,489.03}$

made both sides to the
 6^{th} .

b) $(b^{1/10} = 14.3)^{10/8}$

$b = 14.3^{10/8}$

$\boxed{b = 27.81}$

both sides to the $10/8$

c) $(c^{-1/2} = 0.55)^{-2}$

$c = 0.55^{-2}$

$\boxed{c = 3.31}$

d) $(d^{7/5} = 23)^{5/7}$

$\boxed{d = 9.39}$

Worksheet

1. $x^{1/2}$ 2. $x^{1/4}$ 3. $6^{1/5}$

4. $x^{7/4}$ 5. $16^{4/10}$ 6. $x^{3/5}y^{2/5}$

7. $4\sqrt{x^7}$ or $(4\sqrt{x^7})^1$

8. $5\sqrt{x^4}$ or $(5\sqrt{x^4})^4$

9. $4\sqrt[3]{8^3}$ or $(4\sqrt[3]{8^3})^3$

10. $3\sqrt[10]{10^2}$ or $(3\sqrt[10]{10^2})^2$

11. $x^{5/4} y^{5/4}$

$4\sqrt{x^5 y^5}$ or $(4\sqrt{xy})^5$

12. $4^{3/7} = \sqrt[7]{4^3} = (\sqrt[7]{4^3})^3$

13. $\sqrt[3]{x} = 5$

$3(x^{1/3} = 5)^3$

$x = 5^3$

$\boxed{x = 125}$

14. $(x^{1/4} = 200)^4$

$x = 200^4$

$\boxed{x = 16,000,000,000}$

15. $(x^{1/3} = 6)^3$

$x = 6^3$

~~$x = 216$~~

$\boxed{x = 216}$

16. $(x^{1/8} = 4)^8$

$x = 4^8$

$\boxed{x = 65,536}$

17. $\sqrt[5]{x^4} = 7$

$(x^{4/5} = 7)^{5/4}$

$x = 7^{5/4}$

$\boxed{x = 11.386}$

18. $(x^{5/6} = 8)^{6/5}$

$x = 8^{6/5}$

$\boxed{x = 12.126}$

19. $(x^{4/3} = 5)^{3/4}$

$x = 5^{3/4}$

$\boxed{x = 3.344}$

20. $(x^{7/4} = 15)^{4/7}$

$x = 15^{4/7}$

$\boxed{x = 4.700}$

21. $\sqrt[3]{x^2} = 10$

$(x^{2/3} = 10)^{3/2}$

$x = 10^{3/2}$

$\boxed{x = 31.623}$

22. $\frac{8^{2/3} x^{1/4} y^{-1}}{2 x^{3/4} y^{2/3}}$

$8^{2/3} = (3\sqrt{8})^2 = 2^2 = 4$

$\frac{x^{1/4}}{x^{3/4}} = x^{1/4 - 3/4} = x^{-1/2}$

$\frac{y^{-1}}{y^0} = y^{-1}$

$\frac{4 x^{-1/2} y^{-1}}{2} = \boxed{\frac{2}{x^{1/2} y}}$

$$23. \frac{5x^{2/3}y^{-1/2}}{y^0x}$$

$$\frac{x^{2/3}}{x^1} = x^{2/3-1} = x^{-1/3}$$

$$\boxed{\frac{5}{x^{1/3}y^{1/2}}}$$

$$24. \left(\frac{a^{1/4}c^{1/6}}{c^{5/6}b^{3/4}a^{-1/2}} \right)^{1/2}$$

$$\frac{a^{1/4}}{a^{-1/2}} = a^{1/4 - (-1/2)} = a^{3/4}$$

$$\frac{c^{1/6}}{c^{5/6}} = c^{1/6 - 5/6} = c^{-4/6} = c^{-2/3}$$

$$\left(\frac{b^{3/4} \cdot a^{3/4}}{c^{2/3}} \right)^{1/2}$$

$$= \boxed{\frac{b^{3/8} \cdot a^{3/8}}{c^{1/3}}}$$