

## Secondary Math II - Unit 1 Review

$$1. \frac{2 \cdot 4}{2 \cdot 7} + \frac{3 \cdot 7}{2 \cdot 7} = \frac{8}{14} + \frac{21}{14} = \frac{8+21}{14} = \boxed{\frac{29}{14}}$$

LCD of 7 and 2 is 14

$$2. \frac{9 \cdot 1}{9 \cdot 5} - \frac{4 \cdot 5}{9 \cdot 5} = \frac{9}{45} - \frac{20}{45} = \frac{9-20}{45} = \boxed{\frac{-11}{45}}$$

LCD of 5 and 9 is 45

$$3. \frac{5}{2} \cdot \frac{4}{7} = \frac{5 \cdot 4}{2 \cdot 7} = \frac{20}{14} = \boxed{\frac{10}{7}}$$

$$4. \frac{1}{2} \div \frac{7}{3} = \frac{1}{2} \cdot \frac{3}{7} = \frac{1 \cdot 3}{2 \cdot 7} = \boxed{\frac{3}{14}}$$

$$5. \frac{x}{3} \cdot \frac{5}{2} = \frac{x \cdot 5}{3 \cdot 2} = \frac{x5}{6} \text{ or } \boxed{\frac{5x}{6}}$$

6. Put  $\frac{3}{5}$  in saving,  $\frac{2}{5}$  left to spend.

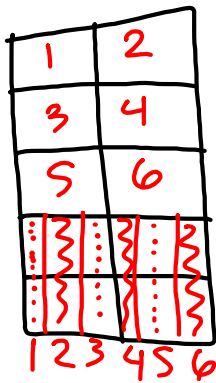
$$\frac{2}{5} \cdot \frac{85}{1} = \frac{170}{5} = \$34$$

or

Spent  $\frac{1}{2}$  of 34

$$\frac{1}{2} \cdot \frac{34}{1} = \frac{34}{2} = \boxed{\$17}$$

7.

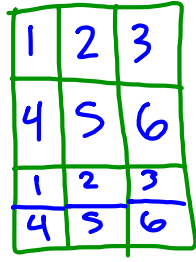


May draw diagram however you want!

Each person gets

$$\boxed{\frac{2}{3} \text{ brownies}}$$

8.



each person gets

$$\boxed{\frac{1}{2} \text{ brownies}}$$

$$\begin{aligned} \boxed{9.} \quad (3 \cdot 2)^2 &= 3^2 \cdot 2^2 = 9 \cdot 4 = \boxed{36} \\ \boxed{10.} \quad (4x^3)^4 &= 4^4 \cdot (x^3)^4 = 256x^{12} = \boxed{256x^{12}} \\ \boxed{11.} \quad 5^2 \cdot 5^{-5} &= 5^{2+(-5)} = 5^{-3} = \frac{1}{5^3} = \boxed{\frac{1}{125}} \\ \boxed{12.} \quad \left(\frac{1}{3}\right)^3 &= \frac{1^3}{3^3} = \frac{1 \cdot 1 \cdot 1}{3 \cdot 3 \cdot 3} = \boxed{\frac{1}{27}} \end{aligned}$$

$$\begin{aligned} \boxed{13.} \quad 2m^2 \cdot 3m^5 &= 2 \cdot 3 \cdot m^2 \cdot m^5 = 6 \cdot m^{2+5} = \boxed{6m^7} \\ \boxed{14.} \quad 3j^3k^{-2} \cdot 3j^{-2}k^4 &= 3 \cdot 3 \cdot j^3 \cdot j^{-2} \cdot k^{-2} \cdot k^4 \\ &= 9 \cdot j^{3+(-2)} \cdot k^{-2+4} = \boxed{9jk^2} \end{aligned}$$

$$\boxed{15.} \quad (x^3z^5)^0 = \boxed{1}$$

$$\boxed{16.} \quad (3ab^2)^2 = 3^2 \cdot a^2 \cdot (b^2)^2 = 9a^2b^{2 \cdot 2} = \boxed{9a^2b^4}$$

$$\boxed{17.} \quad (5w^3)^{-2} = 5^{-2} \cdot (w^3)^{-2} = 5^{-2} \cdot w^{3 \cdot -2}$$

$$= 5^{-2} \cdot w^{-6} = \frac{1}{5^2 w^6} = \boxed{\frac{1}{125w^6}}$$

$$\boxed{18.} \quad \frac{r^3}{r^{-2}} = r^{3-(-2)} = r^{3+2} = \boxed{r^5}$$

$$\boxed{19.} \quad \frac{3a^4 b^{-4} c^{-3}}{5a^2 b^{-3} c^4} = \frac{3a^{4-2} b^{-4-(-3)}}{5c^4 c^3}$$

$$= \frac{3a^2 b^{-1}}{5c^{4+3}} = \boxed{\frac{3a^2}{5bc^7}}$$

$$\boxed{20.} \quad \frac{2jk^{-2}m^3}{2km} = \frac{jm^{3-1}}{k^2} = \frac{jm^2}{k^2} = \boxed{\frac{jm^2}{k^3}}$$

$$\boxed{21.} \quad \sqrt{28}$$

$$\begin{array}{c} \wedge \\ 2 \quad 14 \\ \wedge \\ 2 \quad 7 \end{array}$$

$$2\sqrt{2 \cdot 7}$$

$$\boxed{2\sqrt{7}}$$

$$\boxed{22.} \quad \sqrt[3]{-27}$$

$$\begin{array}{c} \wedge \\ -3 \quad 9 \\ \wedge \\ -3 \quad -3 \end{array}$$

$$3\sqrt{-3 \cdot -3 \cdot -3}$$

$$\boxed{-3}$$

$$\boxed{23.} \quad \sqrt[5]{64}$$

$$\begin{array}{c} \wedge \\ 2 \quad 32 \\ \wedge \\ 2 \quad 6 \\ \wedge \\ 2 \quad 4 \\ \wedge \\ 2 \quad 2 \end{array}$$

$$5\sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}$$

$$\boxed{2}$$

**24.**  $\sqrt[4]{243v^6}$

3 81  
 9 9  
 3 3 3 3

Even!

~~$\sqrt[4]{3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot v \cdot v \cdot v \cdot v \cdot v \cdot v}$~~

$3 \cdot v \cdot \sqrt[4]{3 \cdot v \cdot v}$

$= 3 \cdot v \cdot \sqrt[4]{3v^2}$

**25.**  $\sqrt[3]{5^3}$

$\sqrt[3]{5 \cdot 5 \cdot 5}$

$5$

**26.**  $\sqrt{8x^4}$

2 4  
 2 2

Even

~~$\sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot x \cdot x \cdot x \cdot x}$~~

$2 \cdot x \cdot x \cdot \sqrt{2}$

$2x^2\sqrt{2}$

**27.**  $\sqrt[3]{64m^4n}$

2 32  
 2 16  
 2 8  
 2 4  
 2 2

~~$\sqrt[3]{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot m \cdot m \cdot m \cdot m \cdot n}$~~

$2 \cdot 2 \cdot m \cdot m \cdot \sqrt[3]{m \cdot n}$

$4m^2\sqrt[3]{mn}$

28.  $\sqrt[5]{-32x^6y^{10}z}$

$\begin{array}{c} \wedge \\ -2 \quad 16 \\ \wedge \\ -2 \quad 8 \\ \wedge \\ -2 \quad 4 \\ \wedge \\ -2 \quad 2 \end{array}$

odd

~~$\sqrt[5]{-2 \cdot -2 \cdot -2 \cdot -2 \cdot -2 \cdot x \cdot x \cdot x \cdot x \cdot x \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y \cdot z}$~~

$-2 \cdot x \cdot y \cdot y \cdot \sqrt{x \cdot z}$

$= -2xy^2\sqrt{xz}$

29.  $\sqrt[6]{448x^7y^8}$

$\begin{array}{c} \wedge \\ 2 \quad 224 \\ \wedge \\ 2 \quad 112 \\ \wedge \\ 2 \quad 56 \\ \wedge \\ 2 \quad 28 \\ \wedge \\ 2 \quad 14 \\ \wedge \\ 2 \quad 7 \end{array}$

even!

~~$\sqrt[6]{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 7 \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y}$~~

$2 \cdot |x| \cdot |y| \cdot \sqrt{7 \cdot y \cdot y}$

$= 2|x||y|\sqrt{7y^2}$

$$30. \quad 9^{1/2} = \sqrt[2]{9} = \boxed{3}$$

$$31. \quad 16^{3/4} = (4\sqrt[4]{16})^3 = (2)^3 = \boxed{8}$$

$$32. \quad 8^{-1/3} = \frac{1}{8^{1/3}} = \frac{1}{\sqrt[3]{8}} = \boxed{\frac{1}{2}}$$

$$33. \quad 32^{2/5} = (\sqrt[5]{32})^2 = (2)^2 = \boxed{4}$$

$$34. \quad 27^{-4/3} = \frac{1}{27^{4/3}} = \frac{1}{(\sqrt[3]{27})^4} = \frac{1}{(3)^4} = \boxed{\frac{1}{81}}$$

$$35. \quad X^{1/2} \cdot X^{2/3} = X^{\frac{1}{2} + \frac{2}{3}} = \boxed{X^{7/6}}$$

$$\frac{3 \cdot \frac{1}{2} + 2 \cdot \frac{2}{3} \cdot 2}{3 \cdot 2} = \frac{3}{6} + \frac{4}{6} = \frac{7}{6}$$

$$36. \quad y^2 \cdot y^{1/2} = y^{\frac{2}{1} + \frac{1}{2}} = \boxed{y^{5/2}}$$

$$\frac{2 \cdot \frac{2}{1} + 1 \cdot \frac{1}{2} \cdot 2}{2 \cdot 1} = \frac{4}{2} + \frac{1}{2} = \frac{5}{2}$$

$$37. \quad W^{-2/5} \cdot W^{3/2} = W^{\frac{-2}{5} + \frac{3}{2}} = \boxed{W^{11/10}}$$

$$\frac{2 \cdot -2 + 3 \cdot 5}{2 \cdot 5 + 2 \cdot 5} = \frac{-4}{10} + \frac{15}{10} = \frac{11}{10}$$

$$\boxed{38.} \quad (j^{-10})^{\frac{1}{4}} = j^{\frac{-10}{1} \cdot \frac{1}{4}} = j^{\frac{-10}{4}} = j^{\frac{-5}{2}} = \boxed{\frac{1}{j^{5/2}}}$$

$$\boxed{39.} \quad (m^{\frac{3}{5}})^{\frac{5}{3}} = m^{\frac{3}{5} \cdot \frac{5}{3}} = m^{\frac{15}{15}} = m^1 = \boxed{m}$$

$$\boxed{40.} \quad (x^{\frac{1}{2}} y^{\frac{2}{3}})^{-6} = (x^{\frac{1}{2}})^{-6} \cdot (y^{\frac{2}{3}})^{-6}$$

$$= x^{\frac{1}{2} \cdot \frac{-6}{1}} \cdot y^{\frac{2}{3} \cdot \frac{-6}{1}} = x^{\frac{6}{2}} y^{\frac{12}{3}} = \boxed{x^3 y^4}$$

$$\boxed{41.} \quad \frac{k^{\frac{2}{3}}}{k^{\frac{1}{3}}} = k^{\frac{2}{3} - \frac{1}{3}} = \boxed{k^{\frac{1}{3}}}$$

$$\boxed{42.} \quad \frac{k^2}{k^{\frac{2}{3}}} = k^{\frac{2}{1} - \frac{2}{3}} = \boxed{k^{\frac{4}{3}}}$$

$$\frac{3 \cdot 2}{3 \cdot 1} - \frac{2}{3} = \frac{6}{3} - \frac{2}{3} = \frac{4}{3}$$



43.  $\frac{x^4 y^{-1/3}}{x^{-3/2} y^3} = x^{\frac{4}{1} - \frac{-3}{2}} y^{\frac{-1}{3} - \frac{3}{1}} = x^{11/2} y^{-10/3}$

$= \frac{x^{11/2}}{y^{10/3}}$

$\frac{2 \cdot 4}{2 \cdot 1} + \frac{3}{2} = \frac{8}{2} + \frac{3}{2} = \frac{11}{2}$

$\frac{-1}{3} - \frac{3 \cdot 3}{1 \cdot 3} = \frac{-1}{3} - \frac{9}{3} = \frac{-10}{3}$

44.  $\frac{a^{5/2} b^{3/2}}{a^{3/2} b^{1/4}} = a^{\frac{5}{2} - \frac{3}{2}} b^{\frac{3}{2} - \frac{1}{4}} = a^1 b^{5/4}$

$= ab^{5/4}$

$\frac{5}{2} - \frac{3}{2} = \frac{2}{2} = 1$

$\frac{2 \cdot 3}{2 \cdot 2} - \frac{1}{4} = \frac{6}{4} - \frac{1}{4} = \frac{5}{4}$