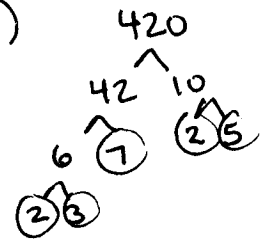
Worksheet 1 Soln's

(1) neither

(2) composite

(3)



$420 = 2 \cdot 2 \cdot 3 \cdot 5 \cdot 7$

(4) $\frac{28}{336} = \frac{\cancel{4} \cdot 7}{\cancel{4} \cdot 4 \cdot 3 \cdot \cancel{7}} = \boxed{\frac{1}{12}}$

(5) $\frac{7}{3} \cdot \frac{6}{14} = \frac{7 \cdot 6}{3 \cdot 14} = \frac{7 \cdot \cancel{3} \cdot \cancel{2}}{\cancel{3} \cdot \cancel{2} \cdot 7} = \boxed{1}$

(6) $4\frac{3}{8} \cdot 5\frac{3}{7}$

$= \frac{32+3}{8} + \frac{35+3}{7}$

$= \frac{35}{8} + \frac{38}{7}$

LCD $= 8 \cdot 7$

$= \frac{35 \cdot 7}{8 \cdot 7} + \frac{38 \cdot 8}{\cancel{7} \cdot \cancel{8}}$

$= \frac{35 \cdot 7 + 38 \cdot 8}{8 \cdot 7}$

$= \frac{245 + 304}{56} = \boxed{\frac{549}{56}}$

(7) $\frac{5}{4} \div \frac{15}{24} = \frac{5}{4} \cdot \frac{24}{15} = \frac{5 \cdot 24}{4 \cdot 15} = \frac{5 \cdot 4 \cdot 6}{4 \cdot 3 \cdot 5}$

$= \frac{6}{3} = \boxed{2}$

(8) $6\frac{3}{5} + 5\frac{1}{2}$

$= \frac{30+3}{5} + \frac{10+1}{2} = \frac{33}{5} + \frac{11}{2}$ LCD $= 5 \cdot 2$

$= \frac{33}{5} \cdot \frac{2}{2} + \frac{11}{2} \cdot \frac{5}{5}$

$= \frac{33 \cdot 2}{5 \cdot 2} + \frac{11 \cdot 5}{2 \cdot 5}$

$= \frac{66 + 55}{10} = \boxed{\frac{121}{10}}$

(9) $\frac{11}{12} - \frac{5}{12} = \frac{6}{12} = \boxed{\frac{1}{2}}$

(10) $\frac{20}{12/3} = \frac{20}{5/3} = \frac{20}{1} \cdot \frac{3}{5} = \frac{4 \cdot \cancel{5}}{1} \cdot \frac{3}{\cancel{5}} = \boxed{12}$

(11) $\left(\frac{2}{3}\right)^4 = \left(\frac{2}{3} \cdot \frac{2}{3} \cdot \frac{2}{3} \cdot \frac{2}{3}\right) = \boxed{\frac{16}{81}}$

(12) $\frac{4 \cdot 10 + 9 \cdot 2}{2(4-2)} = \frac{40 + 18}{2(2)} = \frac{58}{4} = \frac{2 \cdot 29}{2 \cdot 2}$

$= \boxed{\frac{29}{2}}$

(13) $\left(\frac{5}{6}\right)\left(\frac{3}{2}\right) - \left(\frac{1}{3}\right)^2$

$= \frac{5}{6} \cdot \frac{3}{2} - \frac{1}{9} = \frac{5 \cdot \cancel{3}}{2 \cdot \cancel{3} \cdot 2} - \frac{1}{9} = \frac{5}{4} - \frac{1}{9}$

$4 = 2 \cdot 2$, $9 = 3 \cdot 3$, LCD $= 2 \cdot 2 \cdot 3 \cdot 3 = 36$

$= \frac{5}{4} \cdot \frac{9}{9} - \frac{1}{9} \cdot \frac{4}{4}$

$= \frac{45}{36} - \frac{4}{36} = \boxed{\frac{41}{36}}$

(14) $3 \cdot 4 \div 2^2 \neq 3$

$3 \cdot 4 \div 4 \neq 3$

$12 \div 4 \neq 3$

$3 \neq 3$

Not true

(15) $\frac{5+4.5}{14-2.3} \geq 2$

$\frac{5+20}{14-6} \geq 2$

$\frac{25}{8} \geq 2$

$3\frac{1}{8} \geq 2$

True

(16) $\boxed{7 > \frac{15}{5}}$

(17) $\frac{2}{3} < \frac{3}{4}$

reverse

$\frac{3}{4} > \frac{2}{3}$

(18) $x=2 \quad y=-4$

$$\frac{3y^2+2x^2}{5x+y^2}$$

$$= \frac{3(-4)^2+2(2)^2}{5(2)+(-4)^2}$$

$$= \frac{3(16)+2(4)}{5(2)+(16)}$$

$$= \frac{48+8}{10+16} = \frac{56}{26}$$

$$= \frac{2\cdot 28}{2\cdot 13}$$

$$= \boxed{\frac{28}{13}}$$

(19) $\boxed{\frac{x+4}{2x}}$

(20) $6\cdot b + 2(b+3) = 14$

is $b=2$ the answer?

$6(2) + 2(2+3) = 14$

$12 + 2(5) = 14$

$12 + 10 = 14$

$22 \neq 14$

$\boxed{b=2 \text{ Not the soln}}$

(21) $\frac{10}{x} = x+3$

Check the numbers of the set $\{0,2,4,6,8,10\}$

$x=0$

$\frac{10}{0} \neq 0+3$

$\boxed{x=2 \quad \frac{10}{2} = 2+3 \quad 5=5 \ \checkmark}$

$x=4 \quad \frac{10}{4} \neq 4+3$

(22) Expression

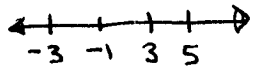
(23) Equation

(24) $\sqrt{7}$ Real irrational

(25) 2.7 Real rational

(26) $\frac{3}{11}$ Real rational

(27)



(28) $\boxed{-15}$

(29) True

(30) False

(31) $\boxed{\frac{-5}{8}}$

(32) $-|23-26|$

$= -|-3|$

$= -(3) = \boxed{-3}$

(33) $-5+(-7)$

$= \boxed{-12}$

(34) $4+(-21)$

$= 4-21$

$= \boxed{-17}$

(35) $-\frac{3}{10} - \left(-\frac{4}{15}\right)$

$= \frac{-3}{10} + \frac{4}{15}$

LCD

$10 = 2\cdot 5$

$15 = 3\cdot 5$

$LCD = 2\cdot 3\cdot 5 = 30$

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

$= \frac{-3\cdot 3}{30} + \frac{4\cdot 2}{30}$

$= \frac{-9}{30} + \frac{8}{30} = \boxed{\frac{-1}{30}}$

(36) $\left[(-7)+14\right] + \left[(-16)+3\right]$

$= [7] + [-13] = \boxed{-6}$

(37) $-\frac{4}{5} + \left[\frac{1}{4} + \left(-\frac{2}{3}\right)\right]$

$= -\frac{4}{5} + \left[\frac{3}{4}\cdot\frac{3}{3} - \frac{2}{3}\cdot\frac{4}{4}\right]$

$= -\frac{4}{5} + \left[\frac{9}{12} - \frac{8}{12}\right]$

$= \frac{-4}{5} + \left(-\frac{5}{12}\right) = \frac{-4}{5}\cdot\frac{12}{12}$

Worksheet 1 Soln

(37) $-\frac{4}{5}+\left[\frac{1}{4}+\left(-\frac{2}{3}\right)\right]$

$=-\frac{4}{5}+\left[\frac{1}{4}-\frac{2}{3}\right]$

$=-\frac{4}{5}+\left[\frac{1}{4}\cdot\frac{3}{3}-\frac{2}{3}\cdot\frac{4}{4}\right]$

$=-\frac{4}{5}+\left[\frac{3}{12}-\frac{8}{12}\right]$

$=-\frac{4}{5}+\left(-\frac{5}{12}\right)$

LCD $= 5\cdot 12 = 60$

$=-\frac{4}{5}\cdot\frac{12}{12}-\frac{5}{12}\cdot\frac{5}{5}$

$=-\frac{48}{60}-\frac{25}{60}$

$=\boxed{-\frac{73}{60}}$

(38) $(2+(-3))-(-6)$

$=(2-3)-(-6)$

$=(-1)+6$

$=\boxed{5}$

(39) $\left(-\frac{2}{7}\right)\left(-\frac{14}{5}\right)$

$=\left(\frac{2}{7}\right)\left(\frac{14}{5}\right)$

$=\frac{2\cdot 2\cdot \cancel{7}}{\cancel{7}\cdot 5}=\boxed{\frac{4}{5}}$

(40) $36 = 3\cdot 2\cdot 2\cdot 3$

$=\boxed{2\cdot 2\cdot 3\cdot 3}$

(41) $-\frac{27}{35}\div\left(-\frac{9}{5}\right)$

$=\frac{27}{35}\cdot\frac{5}{9}$ (negatives turn positive)

$=\frac{3\cdot 9\cdot 5}{7\cdot 5\cdot 9}=\boxed{\frac{3}{7}}$

(42) $\dfrac{-5\left[3\cdot 2^2-(7-4)\right]}{-6\left[3\frac{1}{2}-(-2)\right]-3(-8)}$

$=\dfrac{-5\left[3\cdot 4-(-3)\right]}{-6\left[3+2\right]-3(-8)}$

$=\dfrac{-5\left[12+3\right]}{-6\left[5\right]+24}$

$=\dfrac{-5\left[15\right]}{-30+24}=\dfrac{-75}{-6}=\dfrac{3\cdot 25}{3\cdot 2}=\boxed{\frac{25}{2}}$

(43) $x=-3,\ y=2,\ a=4$

$\dfrac{3(-3)^2-3(2)}{4(4)}=\dfrac{3(9)-3(2)}{4(4)}$

$=\dfrac{18-6}{16}=\dfrac{12}{16}$

$=\dfrac{3\cdot 4}{4\cdot 4}=\boxed{\frac{3}{4}}$

(44) $\frac{2}{3}\left(16+(-10)\right)-(-34)$

$=\frac{2}{3}(6)+34=4+34=\boxed{38}$

(45) $2+[10+(-9)]=\underline{[10+(-9)]+2}$

(46) $[-4+(-2)]+y=\underline{-4+(-2+y)}$

(47) $(-r)[(-p)(-q)]=\underline{[(-r)(-p)](-q)}$

(48) $\boxed{7}$

(49) $\boxed{-5}$

(50) $\frac{2}{7} \cdot \boxed{\frac{7}{2}} = 1$

(51) $-14 + \underline{14} = 0$

(52) $-2(5y - 9z)$

$= \boxed{-10y + 18z}$

(53) $n(2a - 4b + 6c)$

$= n \cdot 2a - n \cdot 4b + n \cdot 6 \cdot c$

$= \boxed{2na - 4n \cdot b + 6n \cdot c}$

(54) $4(-6p - 2) + 7p - 5$

$= 4(-6)p + (4)(-2) + 7p - 5$

$= -24p + (-8) + 7p - 5$

$= \boxed{-17p - 13}$

(55) $\boxed{0.3}$

(56) $\boxed{-8/3}$

(57) like

(58) unlike

(59) $a^2 - 4a^3 - 2a^2 + 8a^3$

$= \boxed{-a^2 + 4a^3}$

(60) $2(4x - 1) - (5x + 2)$

$= 2(4x - 1) + (-1)(5x + 2)$

$= 2(4x) + 2(-1) + (-1)(5x) + (-1)(2)$

$= 8x - 2 - 5x - 2$

$= \boxed{3x - 4}$