

§ 1.4 questions
 #s 69, ~~67~~, 56, 33

33 $8x^3 - 27y^3$

56 $9x^3 + 18x^2 - 4x - 8$
 $= 9x^2[x+2] - 4[x+2]$
 $= (9x^2 - 4)(x+2)$
 $= (3x^2 - 2^2)(x+2)$
 $= ((3x)^2 - 2^2)(x+2)$
 $= (3x-2)(3x+2)(x+2)$

$(x+7)^{53}$

67 $x^6 - 1$ *which one is correct?*

$(x^3)^2 - 1^2 = (x^3-1)(x^3+1)$

$= (x-1)(x^2+x+1)(x+1)(x^2-x+1)$

$(x^3)^3 - 1^3 = (x^3-1)((x^3)^2 + x^3 + 1)$

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

"cyclotomic polynomial"

69 $12a^2(x-7) - 75(x-7)$
 $= (x-7)[12a^2 - 75]$
 $= 3(x-7)(4a^2 - 25)$
 $= 3(x-7)(2a-5)(2a+5)$

Blue Boxes $\sqrt{1.5}$

Pg 45 $\left(\frac{a}{b}\right)^r = \frac{a^r}{b^r}$

Pg 44 $a^{-r} = \frac{1}{a^r}$

Quotient's version
of $(ab)^r = a^r b^r$

$$\frac{a^r}{a^s} = a^{r-s}$$

$$a^0 = 1 \quad a^1 = a$$

#s 1-32 Round to 2 places, if necessary!?

What's wrong with a fraction in lowest terms.

② $\frac{0+6}{0-3} = \frac{6}{-3} = -2$

⑥ $\frac{4-4}{4-2} = \frac{0}{2} = 0$

⑧ $\frac{3+6}{3-3} = \frac{9}{0}$ which ~~is~~.

⑩ $\frac{-1-3}{3-(-3)} = \frac{-4}{3+3} = -\frac{4}{6} = \boxed{-\frac{2}{3}}$

⑮ $\frac{3(-4) + 5(-6)}{10-6} = \frac{-12-30}{4} = \frac{-42}{4} = \boxed{-\frac{21}{2}}$

⑳ $\frac{(6-2)^2}{6^2-2^2} = \frac{4^2}{36-4} = \frac{16}{32} = \boxed{\frac{1}{2}}$

$$\textcircled{38} \quad \frac{1}{2} \left(\frac{1.3}{1.1} - 1 \right)$$

$$= \frac{1}{2} \left(\frac{13}{11} - 1 \right) = \frac{1}{2} \left(\frac{13}{11} - \frac{11}{11} \right) = \frac{1}{2} \left(\frac{2}{11} \right) = \boxed{\frac{1}{11}}$$

perfect

Beware Rounding
ANYTHING before
 the last step.

$$\left(\frac{1.3}{1.1} \right) \left(\frac{10}{10} \right) = \frac{13}{11}$$

$$\frac{1}{11} \approx .09$$

$$\frac{1}{11} = \overline{.09}$$

$$10(2.4)(2.8) = 10(2.4)10(2.8)$$

$$\textcircled{30} \downarrow \frac{(2.4)(2.8)}{1.2} = \frac{\cancel{24}^2(2.8)}{\cancel{12}} = 5.6$$

How to do it all w/ 'fractions'?

$$\frac{(2)(2.8)}{1} \cdot \frac{10}{10} = \frac{(5.6)(10)}{10} = \frac{56}{10} = \frac{28}{5}$$

$$\left. \begin{array}{l} 10(1 \cdot 1 \cdot 1) \\ 10 = 10 \cdot 10 \cdot 10 \end{array} \right\} \begin{array}{l} \text{huh-uh,} \\ \text{Baby.} \end{array}$$

~~30~~

$$(32) \frac{(.0006)(400)}{(.25)^2}$$

$$\frac{\left(\frac{6}{10000}\right)(400)}{\frac{625}{10000}}$$

$$\left(\frac{25}{100}\right)\left(\frac{25}{100}\right) = \frac{625}{10000}$$

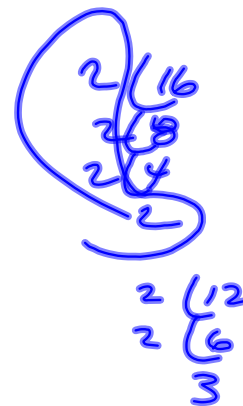
$$\frac{25}{.25}$$

$$25^2 = (5^2)^2 = 5^4$$

$$= \left(\frac{\overset{2}{\cancel{6}}}{\cancel{10000}}\right) \left(\frac{\overset{80}{\cancel{400}}}{\cancel{625}}\right) \left(\frac{\cancel{10000}}{\cancel{625}}\right) = \frac{160}{41}$$

Simplify :

#36 $\frac{9}{16} + (-\frac{5}{12}) = \frac{9}{16} - \frac{5}{12}$
LCM = LCD = $2 \cdot 2 \cdot 2 \cdot 2 \cdot 3$



$$= \frac{9}{2 \cdot 2 \cdot 2 \cdot 2} \cdot \frac{3}{3} - \frac{5}{2 \cdot 2 \cdot 3} \cdot \frac{2 \cdot 2}{2 \cdot 2}$$

$$= \frac{27 - 20}{2^4 \cdot 3} = \frac{7}{2^4 \cdot 3} = \frac{7}{48}$$

$$2^4 \cdot 3$$

$$2^4 \cdot 3$$

Separate question

$$\frac{9}{16} \div (-\frac{5}{12}) = \left(\frac{9}{\cancel{16}_4}\right) \left(-\frac{\cancel{12}_3}{5}\right) = -\frac{27}{20}$$

Sum
 $a+b$

difference
 $a-b$

product
 ab

quotient
 $\frac{a}{b}$

#s 39-46 write with positive exponents.

40

$$(-5)^{-2} = \frac{1}{(-5)^2} = \frac{+1}{25}$$

2 is even
 2 wrongs
 make a right

$$(-5)^{-3} = \frac{1}{(-5)^3} = -\frac{1}{125}$$

3 is odd 3 wrongs are wrong

$$(-5)^2 = ((-1)(5))^2$$

$$= (-1)^2 (5)^2 = 5^2$$

$$= (-5)(-5)$$

$$= (-1)(5)(-1)(5)$$

$$= 25$$

46 $\left(\frac{1}{2}\right)^{-2} + \left(\frac{1}{3}\right)^{-3} = 2^2 + 3^3 = 4 + 27 = 31$
 cribbage

Simplify. Final answers with positive exponents.
Assume variables are all nonzero
(so putting them in denominator is legal.)

$$\textcircled{54} \quad \frac{x^{-3}}{x^5} = x^{-3-5} = x^{-8} = \frac{1}{x^8}$$

OR, like Adam says:

$$\frac{x^{-3}}{x^5} = \frac{1}{x^5 x^3} = \frac{1}{x^{5+3}} = \frac{1}{x^8}$$

$$\textcircled{64} \quad \frac{(x^{-4})^3 (x^3)^{-4}}{x^{10}} = \frac{x^{(-4)(3)} x^{(3)(-4)}}{x^{10}}$$

$$= \frac{x^{-12} x^{-12}}{x^{10}} = x^{-12-12-10} = x^{-34} = \frac{1}{x^{34}}$$

$$\downarrow$$
$$\frac{1}{x^{10} x^{12} x^{12}} = \frac{1}{x^{10+12+12}} = \frac{1}{x^{34}}$$

$$\textcircled{72} \left(\frac{x^{-8}y^{-3}}{x^{-5}y^6} \right)^{-1}$$

$$(a) \frac{x^8 y^3}{x^5 y^{-6}} = x^{8-5} y^{3-(-6)} = x^3 y^9$$

OR

$$(b) \frac{x^{-5}y^6}{x^{-8}y^{-3}} = x^{-5-(-8)} y^{6-(-3)} = x^{-5+8} y^{6+3}$$

$$(c) \frac{x^{-5}y^6}{x^{-8}y^{-3}} = \frac{x^8 y^6 y^3}{x^5} = x^{8-5} y^{6+3} = x^3 y^9$$

$$\textcircled{74} \quad \frac{(2x+3) - (2a+3)}{x-a}$$

$$= \frac{2x+3-2a-3}{x-a} = \frac{2x-2a}{x-a} = \frac{2(x-a)}{x-a} = 2$$

§1.5 #s 1-33, 37, 39-77