Test Results

A x

B x

C

D xxx

F eleven

5) $(x+4)(x^2+5x-3)$

$x^3+4x^2+5x^2+20x-3x-12$

$x^3+9x^2+17x-12$

Blue

4) $(4x+3)^2$

$4x+3$

$4x+3$

$16x^2+12x$

$12x+9$

$16x^2+24x+9$

yellow

12) $x(x+2)(x-5)=0$

$x=0$

$x+2=0$

$-2 \quad -2$

$x=-2$

$x-5=0$

$+5 \quad +5$

$x=5$

$\{0, -2, 5\}$

Blue

12) $x(x+1)(x-3)=0$

$x=0$ $\quad x+1=0$ $\quad x-3=0$

$-1 \quad -1$ $\quad +3 \quad +3$

$x=-1$ $\quad x=3$

$\{0, -1, 3\}$

Blue

7) $(12x^2+4x-5) \div (2x-1)$

$$\begin{array}{r} 6x+5 \\ 2x-1 \overline{)\,12x^2+4x-5} \\ -12x^2 \pm 6x \\ \hline 10x-5 \\ -10x \pm 5 \\ \hline \end{array}$$

$6x+5$

yellow

13) $x^2-12x+32=0$

$(x-8)(x-4)=0$

$x-8=0$ $\quad$ $x-4=0$

$+8 \;\; +8$ $\quad$ $+4 \;\; +4$

$x=8$ $\quad$ $x=4$

$\{8, 4\}$

15 yellow

$$y^4 - 81$$

$$(y^2)^2 - 9^2$$

$$(y^2 - 9)(y^2 + 9)$$

$$(y-3)(y+3)(y^2+9)$$

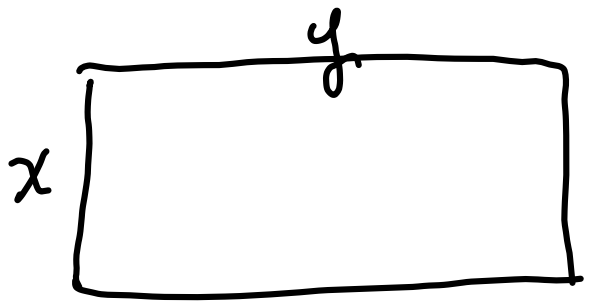
6 Blue

$$\frac{15a^2b - 6a^5b^2 + 12a^2b^3}{3a^2b^2}$$

$$\frac{\cancel{15a^2b}}{\cancel{3a^2b^2}} - \frac{\cancel{6a^5b^2}}{\cancel{3a^2b^2}} + \frac{\cancel{12a^2b^3}}{\cancel{3a^2b^2}}$$

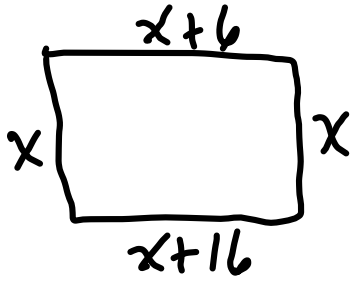
$$\frac{5}{b} - 2a^3 + 4b$$

Lab Sheet



a) $P = 2x + 2y$

b) $A = xy$

② 

prod -80
sum 16
2(40)
-4(20)

the length $= x + 16$

$A = x(x+16)$

$80 = x^2 + 16x$

$-80 \qquad -80$

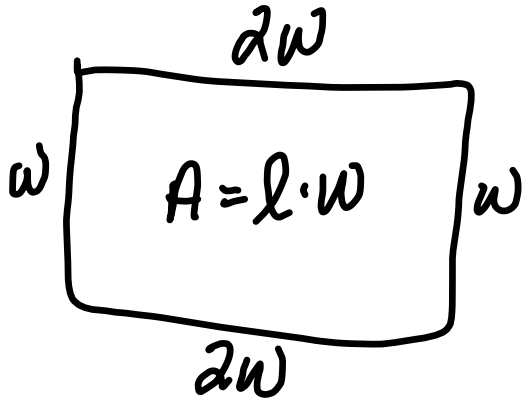
$0 = x^2 + 16x - 80$

$0 = (x-4)(x+20)$

$x = 4$ or $x = -20$

$x + 16 = 20$

3 a) let w = the width
$2w$ = The length



b) let w = The width
$w+4$ = The length

$P = 96$ in

7.1 Reduce Rational Expressions to Lowest Terms

Rational numbers $= \left\{ \frac{a}{b} \mid a \text{ \& } b \text{ are integers} \right\}$

$\frac{2}{3} \quad \frac{4}{8} = \frac{1}{2}$

Rational Expression

$= \left\{ \frac{P}{Q} \mid P \text{ and } Q \text{ are polynomials} \right\}$

$$\frac{32}{72} = \frac{4 \cdot \cancel{8}^{1}}{9 \cdot \cancel{8}_{1}} = \frac{4}{9}$$

ex

$$\frac{x-2}{x^2-4}$$ ←

$$\frac{(x-2)}{(x-2)(x+2)}$$ ← conjugates

$$\frac{1}{x+2}$$

① Multiply the numerator & denominator by the same quantity ($\neq 0$) – it will not change the value.

② Divide – num & denom. does not change the value

#16 $\dfrac{x^2 - 10x + 25}{(x-5)}$

$\dfrac{(x-5)(x-5)}{(x-5)}$

$x - 5$

#20

$$\frac{a^2+3a}{a^3-2a^2-15a}$$

$$\frac{a(a+3)}{a(a^2-2a-15)}$$

$a^2-2a-15$ prod -15, sum -2

$(a-5)(a+3)$

$-5(3)$

$$\frac{a+3}{(a-5)(a+3)}$$

$$\frac{1}{a-5}$$

#40

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

know & love

$$a^3+b^3=(a+b)(a^2-ab+b^2)$$

a	a^2
a	
a	ab
b	
b	b^a
b	

$$\frac{(x+y)(x^2-xy+y^2)}{(x-y)(x+y)}$$

$$\frac{x^2-xy+y^2}{x-y}$$

#36 $\dfrac{5x^2 - 26x + 24}{x^4 - 64}$

$\dfrac{(x-4)(5x-6)}{(x^2-8)(x^2+8)}$

prod 120 $-6(-20)$
sum -26

$5x^2 - 20x - 6x + 24$

$5x(x-4) - 6(x-4)$

$(x-4)(5x-6)$

$x^4 - 64$

$(x^2)^2 - 8^2$

$(x^2-8)(x^2+8)$

#26 $\dfrac{2m^3+4m^2-6m}{m^2-m-12}$

prod -3 $+3(-1)$
sum 2

$\dfrac{2m(m^2+2m-3)}{m^2-m-12}$

$\dfrac{2m(m+3)(m-1)}{(m-4)(m+3)}$

prod -12 $-4(3)$
sum -1

$m^2-4m+3m-12$

$m(m-4)+3(m-4)$

$(m-4)(m+3)$

$\dfrac{2m(m-1)}{m-4}$

7.2 Multiply & Divide Rational Expressions

$$\frac{2}{3} \cdot \frac{1}{2} = \frac{1}{3}$$

$$\frac{2}{6} = \frac{1}{3}$$

(ex) $\frac{4}{15} \cdot \frac{12}{20} = \frac{4}{25}$

$$\frac{2 \cdot 2 \cdot 2 \cdot 2 \cdot 3}{3 \cdot 5 \cdot 2 \cdot 2 \cdot 5}$$

$$\frac{4}{25}$$

(14)

$$\frac{8}{a^2-25} \cdot \frac{a+5}{16}$$

$$\frac{\cancel{8}^{1}}{(a-5)\cancel{(a+5)}_{1}} \cdot \frac{\cancel{(a+5)}^{1}}{\cancel{16}_{2}}$$

$$\frac{1}{2(a-5)}$$

Leave in factored form.

(24) $(x^2-9)\left(\frac{-3}{x-3}\right)$

$$\frac{x^2-9}{1}\cdot\frac{(-3)}{x-3}$$

$$\frac{(x-3)(x+3)(-3)}{(x-3)}$$

$$-3(x+3)$$

$$\frac{a^2+a-2}{a^2+5a+6} \div \frac{a-1}{a}$$

$\frac{1}{3} \div \frac{5}{7}$

$\frac{1}{3} \cdot \frac{7}{5}$

$$\frac{a^2+a-2}{a^2+5a+6} \cdot \frac{a}{a-1}$$

$$\frac{(a+2)(a-1)(a)}{(a+2)(a+3)(a-1)}$$

$$\frac{a}{a+3}$$

$$\frac{1000\,\text{ft}}{3\,\text{gal}}\left(\frac{1\,\text{mi}}{5280\,\text{ft}}\right)$$

$$\frac{5280\,\text{ft}}{\text{mi}}$$

$$\frac{1000\,\text{mi}}{3(5280)\,\text{gal}}$$

$$\frac{1000\,\text{mi}}{15840\,\text{gal}}$$

$$.0656\,\frac{\text{mi}}{\text{gal}}$$

$$\frac{200\,\text{mi}}{5\,\text{gal}} = \frac{40\,\text{mi}}{\text{gal}}$$

unit conversion

$$\left(\frac{720\ \text{ft}}{5\ \text{min}}\right)\left(\frac{60\ \text{min}}{1\ \text{hr}}\right)\left(\frac{1\ \text{mi}}{5280\ \text{ft}}\right)$$

$$\frac{720(60)\ \text{mi}}{5(5280)\ \text{hr}}$$

$$\frac{43200\ \text{mi}}{26400\ \text{hr}}$$

$$1.6\ \frac{\text{mi}}{\text{hr}}$$