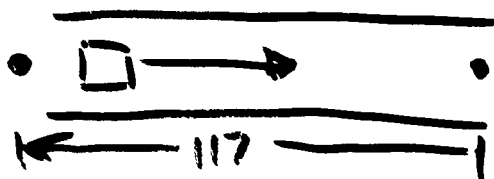


Alg. 1-BE-MONDAY 1-25-10

Let $b = \overset{\text{(RATE)}}{\text{Speed of boat}} \left(\frac{\text{miles}}{\text{hr}} \right)$

$c = \text{speed of current} \left(\frac{\text{miles}}{\text{hr}} \right)$

$$\boxed{d = r t}$$



$d = 117$ down stream

$d = 117$ up stream

$\boxed{234}$ miles total

$t = 13$ hrs down stream

$t = 39$ hrs up stream

① SOLVE

$$\begin{cases} 117 = (b+c)13 \\ 117 = (b-c)39 \end{cases} \text{ or } \begin{cases} 234 = \dots \\ 234 = \dots \end{cases} *$$

$d = (\text{rate}) \cdot \text{time}$ * poorly worded

② WHY DO RIVERS FLOW DOWNSTREAM?

• Quiz 3, HW 3 return

1.
MATHForum.org great site for
MATH HELP. Go to "ASK DR. MATH"
AND USE THE SEARCH BOX. I went
there AND input factor by grouping
AND found A VERY GOOD EXPLANATION
AND some useful tips that ARE NOT
in the book AND ARE NEW TO ME:

EX) A 4 term POLYNOMIAL HAS 3
possible groups: $a + b + c + d$

① $(a + b) + (c + d)$

② $(a + c) + (b + d)$

③ $(a + d) + (b + c)$

IF FBG WORKS, 2 of these groups will
work AND 1 will NOT!

IF FBG DOES NOT WORK, 0 of the
groups will work!

$$y = f(x) = mx + b$$

$$y = f(x) = ax + b$$

$$y = f(x) = ax$$

or, for comparison

linear function,
 x^1 is highest degree

STILL A line, a
 direct variation

$$y = f(x) = ax^2 + bx + c$$

$$y = f(x) = ax^2$$

STILL A parabola

x^2 is highest
 degree, not a
 line but a curve
 called a parabola

Quadratic Function

if $y = 0$

$$0 = ax^2 + bx + c$$

STANDARD FORM
 OF A
QUADRATIC EQUATION

$$0 = () ()$$

FACTOR

$$0 = a \cdot b$$

Solve by ZPP

if $ax^2 + bx + c$ is prime, can't solve
 BY FACTORING

How to factor ax^2+bx+c IF
it can be factored (is not prime)

MAGIC NUMBER METHOD

Factor: $2x^2 + 4x^2 + 17x = -5$

Step 1 Put in standard form: ax^2+bx+c

$$6x^2 + 17x + 5 = 0 \quad \begin{array}{l} a=6 \\ b=17 \\ c=5 \end{array}$$

Step 2 Find 2 magic numbers whose
sum is $b=17$ and product is $ac=30$

$$6x^2 + 17x + 5 = 0$$

$$b = \text{sum} = 17$$

$$ac = \text{prod} = 30$$

$$+2 \quad +15$$

Put + or - next to numbers

Step 3 Split middle term into magic terms
and FBG!

$$(6x^2 + 2x) + (15x + 5) = 0$$

$$2x(3x + 1) + 5(3x + 1) = 0$$

$$(3x + 1)(2x + 5) = 0$$

Solve
Equation
w/ ZPP

$$x = \left\{ -\frac{1}{3}, \frac{5}{2} \right\}$$

ⓔx Solve $7x^2 + 22x + 3 = 0$

$7x^2 + 22x + 3 = 0$ in S.F. ✓

$b = \text{sum} = 22$

$ac = \text{prod} = 21$

$+1 \quad +21$

$(7x^2 + 1x) + (21x + 3) = 0$

$x(7x + 1) + 3(7x + 1) = 0$

$(7x + 1)(x + 3) = 0$

$x = \left\{ -\frac{1}{7}, -3 \right\}$

ⓔx $8a^2 - 9a - 5 = 4 - 3a$

$8a^2 - 6a - 9 = 0$

$b = \text{sum} = -6$

$ac = \text{prod} = -72$

$+6 \quad -12$

LOOK

(SIGNS!)

$\begin{array}{c} 72 \\ \swarrow \downarrow \searrow \\ (2) \quad 3 \quad 6 \\ \swarrow \downarrow \searrow \\ 6 \quad 6 \\ \swarrow \downarrow \searrow \\ (2) \quad (3) \quad (2) \quad (3) \end{array}$

$(8a^2 - 12a) + (6a - 9) = 0$

$4a(2a - 3) + 3(2a - 3) = 0$

$(2a - 3)(4a + 3) = 0$

$x = \left\{ \frac{3}{2}, -\frac{3}{4} \right\}$

Homework:

Pg. 499 # 10 to 12
35 to 38

WE JUST FINISHED CH. 9-3 and 9-4
