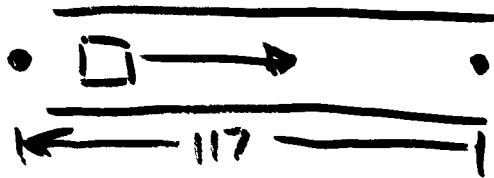


Alg. 1 - BE - MONDAY 1-31-11

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

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

$d = r t$



$d = 117$  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!

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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

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

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

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

↑  
STILL 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 +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

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

⊙ Ex Solve  $7x^2 + 22x + 3 = 0$

$7x^2 + 22x + 3 = 0$  in S.F. ✓

$b = \text{sum} = 22$

$ac = \text{prod} = 21$

$+1 \quad +21$

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

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

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

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

⊙ Ex  $8a^2 - 9a - 5 = 4 - 3a$

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

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

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

$+6 \quad -12$

LOOK

(SIGNS!)

$\begin{array}{c} 72 \\ \swarrow \searrow \\ (2) \quad 36 \\ \swarrow \searrow \\ 6 \quad 6 \\ (2) \quad (3) \quad (2) \quad (3) \end{array}$

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

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

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

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

EX4 P5497

Homework:

Pg. 499 # 10 to 12  
# 35 to 38

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

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