

**BE-Algebra I** TUESDAY 1-30-12

- ① HSA  $\Rightarrow$  6 vans, 11 buses, 632 students  
HSB  $\Rightarrow$  12 vans, 7 buses, 484 students.

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EACH VAN or bus HAS SAME NUMBER OF STUDENTS.

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Find: <sup>NUMBER OF</sup> STUDENTS IN EACH VAN or bus

Let:  $v =$  STUDENTS PER VAN  
 $b =$  STUDENTS PER BUS

**SOLVE**

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$$\begin{cases} 6v + 11b = 632 \\ 12v + 7b = 484 \end{cases}$$

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• Homework review: Pg 499/10-12  
35-38



How to tell if a quadratic  
is prime:

$b^2 - 4ac$  is called the  
discriminant because  
it tells you what  
type of solution you  
have.

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If  $b^2 - 4ac$  is a perfect  
square, (EX) 0, 4, 9, 16, 25, 36, ...  
then the quadratic can be  
factored.

3.  
EX) Is  $x^2 + x - 12$  prime?

$$a = 1 \quad b^2 - 4ac$$

$$b = 1 \quad ( )^2 - 4( )( )$$

$$c = -12 \quad (1)^2 - 4(1)(-12)$$

$$1 + 48 = \underline{\underline{49}}$$

PERFECT SQUARE,  
OK to factor

$$b = \text{sum} = 1$$

$$ac = \text{prod} = -12$$

$$\begin{array}{c} / \quad \backslash \\ -3 \quad +4 \end{array}$$

\*USE SHORTEST  
SINCE  $a = 1$

$$\boxed{(x-3)(x+4)}$$

$$\underline{\underline{CK}} \quad (x-3)(x+4)$$

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

$$x^2 + x - 12 \quad \checkmark$$

Practice: Prime or NOT, if NOT, factor.

①  $3a^2 + 8a + 4$

②  $2a^2 - 11a + 7$

①  $3a^2 + 8a + 4$

$a=3$      $b^2 - 4ac$

$b=8$      $(8)^2 - 4(3)(4)$

$c=4$      $64 - 48$

$16 \checkmark$

Sum  $\Rightarrow 8$

Prod  $\Rightarrow 12$

$\begin{matrix} \wedge \\ +2 \quad +6 \end{matrix}$

$(3a^2 + 2a) + (6a + 4)$

$a(3a+2) + 2(3a+2)$

$(3a+2)(a+2)$

②  $2a^2 - 11a + 7$

$a=2$      $b^2 - 4ac$

$b=-11$      $(-11)^2 - 4(2)(7)$

$c=7$      $121 - 56$

65 NOT Perfect Square  $\Rightarrow$   
Prime

Classwork/Homework: \*Pg 499 # 14-25  
Check  $b^2 - 4ac$  first!