

Notes 7, 8

1)  $12x^3 + 3x^2 + 20x + 5$   
 $(12x^3 + 3x^2) + (20x + 5)$   
 $3x^2(4x+1) + 5(4x+1)$   
 answer  $(3x^2+5)(4x+1)$

1. Step 1 factor from the second  $(20x+5)$  a 5 then write  $(4x+1)$  on the other side.

2. Factor a  $3x$  from  $(12x^3+3x^2)$  or divide  $12x^3$  by  $4x = 3x^2$

2.  $6x^3 + 42x^2 + 5x + 35$   
 $(6x^3 + 42x^2) + (5x + 35)$   
 $6x^2(x+7) + 5(x+7)$   
 $(6x^2+5)(x+7)$

1. Factor 5 from  $(5x+35)$

2. divide  $6x^3$  by  $x = 6x^2$

3.  $8t^3 + 36t^2 + 2t + 9$   
 $(8t^3 + 36t^2) + (2t + 9)$   
 $4t^2(2t+9) + 1(2t+9)$   
 $(4t^2+1)(2t+9)$

1. divide  $8t^3 \div 2t = 4t^2$

4)  $18x^3 - 12x^2 + 21x - 14$

$(18x^3 - 12x^2) + (21x - 14)$

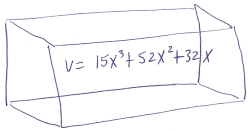
$6x^2(3x-2) + 7(3x-2)$

$(6x^2 + 7)(3x - 2)$

1. factor a 7  
from  $(21x-14)$

2. divide  $18x^3$  by  $3x = 6x^2$

5)



$15x^3 + 52x^2 + 32x$   
 $x(15x^2 + 52x + 32)$   
 $x(5x + 4)(3x + 8)$

1. factor an  $x$

factors of 15

- 1, 15,
- 5, 3

factors of 32

- 1, 32
- 2, 16
- 4, 8

You can check using Foil

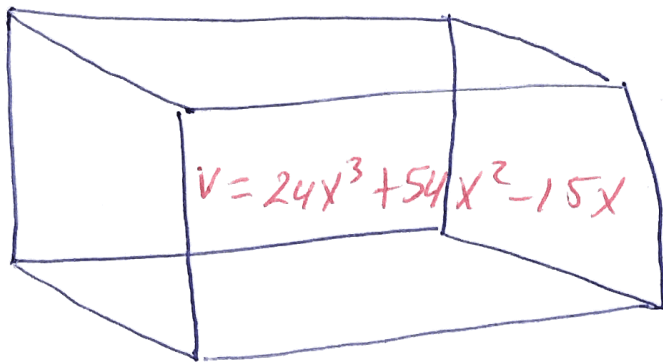
$x(5x+4)(3x+8)$   
 $x(15x^2 + 40x + 12x + 32)$

$15x^3 + 40x^2 + 12x^2 + 32x$

$15x^3 + 52x^2 + 32x$

notes 7, 8

6)



1. factor  $3x$

$$24x^3 + 54x^2 - 15x$$

$$3x(8x^2 + 18x - 5)$$

$$3x(4x - 1)(2x + 5)$$

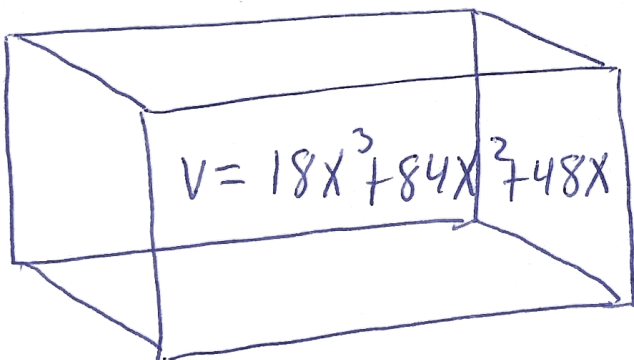
factors of 15  
1, 5

factor of 8

1, 8

2, 4

7)



1. factor a.  $6x$

$$18x^3 + 84x^2 + 48x$$

$$6x(3x^2 + 14x + 8)$$

$$6x(3x + 2)(x + 4)$$

factors of

8

1, 8

2, 4

factor of 3

3, 1