1. Write each number as a product of its prime factors.
   1. 1100 b. 720
2. Factor completely.

a. 30*p* – 21*p*2 b. 42*b*2 – 12 c. *n*2 +13*n* + 30

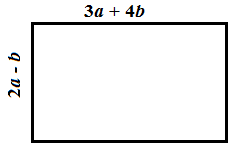
d. 18 - 9*b* + *b*2 e. 32*x*2- 18 f. -2*n*2 +22*n* -48

g. 3*n*2 + *n* -10 h. 20*y*2 +70*y* + 60   
  
  
3. Expand.

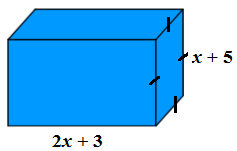
a. (12 + *r*) ( 11 – *r*) b.( 2*m* + *p*) ( 3*m* + 2*p*)

c. (2*x*2 – 1)( *x*2 – 2*x* + 3) d. ( *m* + 1) ( 2*m* + 3)(3m + 2)

4. Determine the area of the rectangle below.



5. Determine the volume of the rectangular prism.



6. A cube has a volume of 162 cm3. Determine the *exact* length (in simplest form) of an edge.

7. Write as an entire radical:

a)  b)  c) 

8. Determine the *number* of solutions for each linear system.

a) 2x – y = –3 b) 3x + y = 1

-4x + 2y = 6 –9x – 3y = 18

9. Evaluate without using a calculator. Show your work.

a)  b)  c) 

10. Solve the following systems of equations using the specified method.

a) Elimination 7x + 12y = -4

4x – 3y = -22

b) Substitution 3x + y = 12

2x + 3y = 43

**Answers:**

1. Prime factorization
   1. 1100 = **22 ∙ 52 ∙ 11** b. 720 = **24 ∙ 32 ∙ 5**
2. Factor

a. 30*p* – 21*p*2 b. 42*b*2 – 12 c. *n*2 +13*n* + 30

**3*p*(10-7*p*) 6(** ***7b2* – 2) (*n* + 10) (*n* + 3)**

d. 18 - 9*b* + *b*2 e. 32*x*2- 18 f. -2*n*2 +22*n* -48

**(- 6 + *b*) (- 3 + *b*)** ou **(*b* - 6) (*b* - 3)** **2(4*x* + 3) (4*x* - 3)** **-2(*n* – 8)(*n* – 3)**

g. 3*n*2 + *n* -10 h. 20*y*2 +70*y* + 60

**(*n* + 2)(3*n* -5)** **10(*y* + 2)(2*y* + 3)**   
  
  
3. Expand

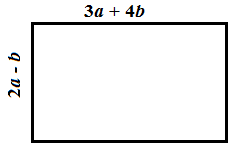
a. (12 + *r*) ( 11 – *r*) b.( 2*m* + *p*) ( 3*m* + 2*p*)

**132 – *r* – *r*2**  **6*m*2 +7*mp* + 2*p*2**

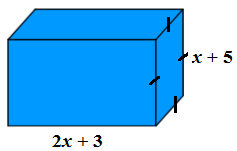
c. (2*x*2 – 1)( *x*2 – 2*x* + 3) d. ( *m* + 1) ( 2*m* + 3)(3m + 2)

**2*x*4 -4*x*3+ 5*x*2** **+ 2*x* -3 6*m*3+ 19*m*2** **+ 19*m* + 6**

4. Find the area.

 **6*a*2** **+ 5*ab* -4*b*2**

5. Find the volume

 **2*x*3+ 23*x*2** **+ 80*x* + 75**

6. V = 162 cm3

S3 = 162 cm3



S =  cm

S =  cm

8. a) Infinite solutions b) no solution

9 a)  b)  c) 

10a) (–4, 2) b) (–1, 15)