***Polynomials***

**Adding and Subtracting Polynomials**

**Properties of Real numbers**

For all real numbers *a*, *b*, and *c*:

 ***Commutative properties***



 ***Associative properties***



 ***Distributive properties***

***Add or subtract as indicated***

1. 







1. 





1. 





Multiply

1. 





1. 





1. 









Find 







Find 













***Perform the indicated operations: ***





***Perform the indicated operations: ***





***Perform the indicated operations: ***

 



***Factoring***

**Prime Factorization**

A process that allows us to write a composite number as a product of two or more prime numbers.

Tree

10

2 5 10 = 2 *x* 5

72 = 2. 36

= 2. 6. 6

= 2. 2. 3. 2. 3

= 23 32

**The Greatest Common Factor (GCF)**

The largest factor that two or more numbers (or terms) have in common

***Find GCF*** (18, 36)

18: 2. 9 36: 2. 18

2. 3. 3 2. 2. 3. 3

18: 2 32 → 1, 2, 3, 6, 9, **18**

36: 22 32 → 1, 2, 3, 4, 6, 9, 12, **18**, 36 GCF (18, 36) = 18 (is the greatest common factor)

***Find GCF*** (27, 45)

27 = 33

45 = 32 5

32 GCF (27, 45) = 9

***Find*** GCF (40, 56)

40 = 23 5

56 = 23 7

23 GCF (40, 56) = 8

***Find GCF*** (80, 60)

80 = 24 5

60 = 22 3 5

22 5 GCF (80, 60) = 20

***Factor out the greatest common factor***

|  |  |
| --- | --- |
| **12** | 2 . 2 . 3 |
| **18** | 2 . . 3 . 3 |
|  | 2 . 3 |

1. 



1. 



**Factoring Trinomial**

***Factor ***

|  |  |
| --- | --- |
| ***Product***  15 | ***Sum***  8 |
| 15 *x* 1 | 15 + 1 |
| 3 *x* 5 | 3 + 5 |



***Factor ***



**Special Factorization**











***Factor***

1. 





1. 

 can’t be factored (in real number) it is prime.

1. 



1. 





1. 





1. 



1. 







1. 







***Factor: ***



***Factor: ***



***Factor: ***





***Factor: ***









***Fraction***







1. 



1. 





Simplify: 





Simplify: 







If the denominators are the same ⇒ add the numerators



If the denominators are the same ⇒ subtract the numerators



If the denominators are not the same

⇒ Find Least Common Denominator (LCD) and convert so that the fractions have the same denominators

***LCD:*** is the smallest whole number that is a multiple of each

 LCD (8, 12)

8 = 23

12 = 22 3

23 3 = 24 LCD (8, 12) = 24











LCD (75, 50) 75 = 53

50 = 2 52

2 53 = 150 LCD (75, 50) = 150

















































****

** **





















Find:

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 

***Solution***

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 

***Exponents***

**Integer Exponents**

*Definition of exponent*

 ***a*** appears as a factor *n* times

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |

1. 



1. 



1. 



1. 



1. 



1. 



1. 



1. 





1. 







1. 







1. 







1. 











Calculations with exponents

1. 
2. 
3. 
4.  *is not a real number*

**Rational Exponents**



***Calculations with Exponents***

1.  











1.  







1.  







Simplify

1. 











1. 









1. 











Simplify

1. 





1. 



1. 







**Radicals**



1. 



1. 
2. 



1. 



**Properties**











Simplify

1. 







1. 





1. 







1. 





1. 





1. 







**Rationalizing Denominators**

Simplify by rationalizing the denominator

1. 



1. 



1. 







Simplify 







Simplify 



Simplify 







Simplify 







Simplify 



