

WWW.MathNotion.COM

... So Much More Online!

- ✓ FREE Math Lessons
- ✓ More Math Learning Books!
- ✓ Mathematics Worksheets
- ✓ Online Math Tutors

For a PDF Version of This Book



Please Visit WWW.MathNotion.com

Contents

Chapter 1 : Review the Basics	11
Adding and Subtracting Integers	12
Multiplying and Dividing Integers	13
Order of Operations	14
Ordering Integers and Numbers.....	15
Integers and Absolute Value	16
Multiplication Property of Exponents	17
Zero and Negative Exponents.....	18
Division Property of Exponents	19
Powers of Products and Quotients	20
Negative Exponents and Negative Bases	21
Answers of Worksheets	22
Chapter 2 : Algebraic Expressions	25
Simplifying Variable Expressions	26
Simplifying Polynomial Expressions.....	27
Translate Phrases into an Algebraic Statement	28
The Distributive Property.....	29
Evaluating One Variable Expressions	30
Evaluating Two Variables Expressions.....	31
Combining like Terms.....	32
Answers of Worksheets	33
Chapter 3 : Equations and Inequalities.....	35
One-Step Equations	36
Multi-Step Equations	37
Graphing Single-Variable Inequalities	38
One-Step Inequalities	39
Multi-Step Inequalities	40
Solving Systems of Equations by Substitution	41
Solving Systems of Equations by Elimination	42
Systems of Equations Word Problems	43
Finding Midpoint	44

Algebra 1

Finding Distance of Two Points	45
Answers of Worksheets	46
Chapter 4 : Linear Functions.....	49
Finding Slope.....	50
Graphing Linear Equations.....	51
Graphing Linear Inequalities	52
Writing Linear Equations	53
Graphing Horizontal and Vertical Lines	55
Rate of change	56
x and y intercepts.....	56
Slope–intercept Form.....	57
Point–slope Form	58
Equation of Parallel or Perpendicular Lines	59
Graphing Absolute Value Equations	60
Answers of Worksheets	61
Chapter 5 : Radicals Expressions.....	66
Square Roots	67
Simplifying Radical Expressions	68
Adding and Subtracting Radical Expressions.....	69
Multiplying Radical Expressions	70
Simplifying Radical Expressions Involving Fractions.....	71
Answers of Worksheets	72
Chapter 6 : Functions Operations and Quadratic.....	75
Relations and Functions	76
Evaluating Function	77
Adding and Subtracting Functions	78
Multiplying and Dividing Functions	79
Composition of Functions	80
Quadratic Equation	81
Solving Quadratic Equations	82
Quadratic Formula and the Discriminant	83
Graphing Quadratic Functions	84
Quadratic Inequalities	85
Domain and Range of Radical Functions	86
Solving Radical Equations	87
Answers of Worksheets	88

Algebra 1

Chapter 7 : Factoring and Monomials.....	93
Factoring Numbers	94
Greatest Common Factor.....	95
Least Common Multiple.....	96
GCF of Monomials	97
Factoring Quadratics	98
Factoring by Grouping.....	99
GCF and Powers of Monomials	100
Answers of Worksheets	101
Chapter 8 : Polynomials	105
Writing Polynomials in Standard Form	106
Simplifying Polynomials.....	107
Adding and Subtracting Polynomials	108
Multiplying Monomials	109
Multiplying and Dividing Monomials.....	110
Multiplying a Polynomial and a Monomial	111
Multiplying Binomials.....	112
Factoring Trinomials.....	113
Operations with Polynomials	114
Answers of Worksheets	115
Chapter 9 : Rational Expressions.....	119
Simplifying and Graphing Rational Expressions	120
Adding and Subtracting Rational Expressions	121
Multiplying and Dividing Rational Expressions.....	122
Solving Rational Equations and Complex Fractions	123
Answers of Worksheets	124
Chapter 10 : Statistics and Probability	126
Mean and Median.....	127
Mode and Range.....	128
Probability Problems.....	129
Factorials	130
Answers of Worksheets	131
Chapter 11 : Algebra 1 Practice Tests.....	133
Algebra 1 Practice Test 1	135
Algebra 1 Practice Test 2.....	145

Algebra 1

Chapter 12 : Answers and Explanations.....	153
Answer Key.....	153
Practice Tests 1:	155
Practice Tests 2:	161

Chapter 1 :

Review the Basics

Topics that you'll practice in this chapter:

- ✓ Adding and Subtracting Integers
- ✓ Multiplying and Dividing Integers
- ✓ Order of Operations
- ✓ Ordering Integers and Numbers
- ✓ Integers and Absolute Value
- ✓ Multiplication Property of Exponents
- ✓ Zero and Negative Exponents
- ✓ Division Property of Exponents
- ✓ Powers of Products and Quotients
- ✓ Negative Exponents and Negative Bases

“Wherever there is number, there is beauty.” –Proclus

Adding and Subtracting Integers **Find each sum.**

1) $14 + (-6) =$

6) $30 + (-14) + 8 =$

2) $(-13) + (-20) =$

7) $40 + (-10) + (-14) + 17 =$

3) $5 + (-28) =$

8) $(-15) + (-20) + 13 + 35 =$

4) $50 + (-12) =$

9) $40 + (-20) + (38 - 29) =$

5) $(-7) + (-15) + 3 =$

10) $28 + (-12) + (30 - 12) =$

 **Find each difference.**

11) $(-18) - (-7) =$

19) $62 - (28 + 17) - (-15) =$

12) $25 - (-14) =$

20) $58 - (-23) - (-31) =$

13) $(-20) - 36 =$

21) $19 - (-8) - (-13) =$

14) $34 - (-19) =$

22) $(19 - 24) - (-14) =$

15) $51 - (30 - 21) =$

23) $27 - 33 - (-21) =$

16) $17 - (5) - (-24) =$

24) $58 - (32 + 24) - (-9) =$

17) $(35 + 20) - (-46) =$

25) $36 - (-30) + (-17) =$

18) $48 - 16 - (-8) =$

26) $27 - (-42) + (-31) =$

Multiplying and Dividing Integers

 **Find each product.**

1) $(-9) \times (-5) =$

6) $(14 - 3) \times (-8) =$

2) $(-3) \times 9 =$

7) $12 \times (-9) \times (-3) =$

3) $8 \times (-12) =$

8) $(140 + 10) \times (-2) =$

4) $(-7) \times (-20) =$

9) $10 \times (-12 + 8) \times 3 =$

5) $(-3) \times (-5) \times 6 =$

10) $(-8) \times (-5) \times (-10) =$

 **Find each quotient.**

11) $42 \div (-7) =$

19) $221 \div (-13) =$

12) $(-48) \div (-6) =$

20) $(-126) \div (6) =$

13) $(-40) \div (-8) =$

21) $(-161) \div (-7) =$

14) $54 \div (-2) =$

22) $-266 \div (-14) =$

15) $152 \div 19 =$

23) $(-120) \div (-4) =$

16) $(-144) \div (-12) =$

24) $270 \div (-18) =$

17) $180 \div (-10) =$

25) $(-208) \div (-8) =$

18) $(-312) \div (-12) =$

26) $(135) \div (-15) =$

Order of Operations

 Evaluate each expression.

1) $7 + (5 \times 4) =$

11) $(-7) + (12 \times 3) + 11 =$

2) $14 - (3 \times 6) =$

12) $(8 \times 5) - (24 \div 6) =$

3) $(19 \times 4) + 16 =$

13) $(7 \times 6 \div 3) - (12 + 9) =$

4) $(16 - 7) - (8 \times 2) =$

14) $(13 + 5 - 14) \times 3 - 2 =$

5) $27 + (18 \div 3) =$

15) $(20 - 14 + 30) \times (64 \div 4) =$

6) $(18 \times 8) \div 6 =$

16) $32 + (28 - (36 \div 9)) =$

7) $(32 \div 4) \times (-2) =$

17) $(7 + 6 - 4 - 7) + (15 \div 5) =$

8) $(9 \times 4) + (32 - 18) =$

18) $(85 - 20) + (20 - 18 + 7) =$

9) $24 + (4 \times 3) + 7 =$

19) $(20 \times 2) + (14 \times 3) - 22 =$

10) $(36 \times 3) \div (2 + 2) =$

20) $18 + 5 - (30 \times 3) + 20 =$

Ordering Integers and Numbers

 **Order each set of integers from least to greatest.**

1) 8, -10, -5, -3, 4 _____, _____, _____, _____, _____, _____

2) -10, -18, 6, 14, 27 _____, _____, _____, _____, _____, _____

3) 15, -8, -21, 21, -23 _____, _____, _____, _____, _____, _____

4) -14, -40, 23, -12, 47 _____, _____, _____, _____, _____, _____

5) 59, -54, 32, -57, 36 _____, _____, _____, _____, _____, _____

6) 68, 26, -19, 47, -34 _____, _____, _____, _____, _____, _____

 **Order each set of integers from greatest to least.**

7) 18, 36, -16, -18, -10 _____, _____, _____, _____, _____, _____

8) 27, 34, -12, -24, 94 _____, _____, _____, _____, _____, _____

9) 50, -21, -13, 42, -2 _____, _____, _____, _____, _____, _____

10) 37, 46, -20, -16, 86 _____, _____, _____, _____, _____, _____

11) -18, 88, -26, -59, 75 _____, _____, _____, _____, _____, _____

12) -65, -30, -25, 3, 14 _____, _____, _____, _____, _____, _____

Integers and Absolute Value

 **Write absolute value of each number.**

1) $|-2| =$

11) $|-11|$

2) $|-27| =$

12) $|88| =$

3) $|-20| =$

13) $|0| =$

4) $|14| =$

14) $|79| =$

5) $|6| =$

15) $|-32| =$

6) $|-55| =$

16) $|-17| =$

7) $|16| =$

17) $|42| =$

8) $|2| =$

18) $|-46| =$

9) $|54| =$

19) $|1| =$

10) $|-4| =$

20) $|-40| =$

 **Evaluate the value.**

21) $|-5| - \frac{|-21|}{7} =$

25) $|4 \times (-5)| + \frac{|-40|}{5} =$

22) $14 - |3 - 15| - |-4| =$

26) $\frac{|-45|}{9} \times \frac{|-24|}{12} =$

23) $\frac{|-32|}{4} \times |-4| =$

27) $|-12 + 8| \times \frac{|-7 \times 7|}{7}$

24) $\frac{|7 \times (-3)|}{7} \times \frac{|-19|}{3} =$

28) $\frac{|-11 \times 2|}{4} \times |-16| =$

Multiplication Property of Exponents

 Simplify and write the answer in exponential form.

1) $4 \times 4^5 =$

17) $2x^8 \times 2x =$

2) $8^4 \times 8 =$

18) $6x \times x^5 =$

3) $7^3 \times 7^3 =$

19) $4x^2 \times 6x^6 =$

4) $9^2 \times 9^2 =$

20) $5yx^3 \times 4x =$

5) $2^2 \times 2^4 \times 2 =$

21) $7x^3 \times y^5x^7 =$

6) $5 \times 5^3 \times 5^3 =$

22) $y^2x^3 \times y^5x^4 =$

7) $4^3 \times 4^2 \times 4 \times 4 =$

23) $3x^5 \times 4x^3y^4 =$

8) $5x \times x =$

24) $4x^4 \times 9x^2y^5 =$

9) $x^3 \times x^3 =$

25) $5x^3y^4 \times 6x^8y^2 =$

10) $x^7 \times x^2 =$

26) $8x^3y^6 \times 4xy^3 =$

11) $x^4 \times x^3 \times x^2 =$

27) $2xy^5 \times 6x^3y^3 =$

12) $10x \times 3x =$

28) $4x^5y^2 \times 4x^2y^8 =$

13) $4x^3 \times 4x^3 =$

29) $7x \times 3y^8x^2 \times y^5 =$

14) $7x^3 \times x =$

30) $x^3 \times 2y^3x^4 \times 2y =$

15) $3x^2 \times 4x^2 \times x^2 =$

31) $3yx^4 \times 3y^4x \times 3xy^3 =$

16) $5x^4 \times x^4 =$

32) $6y^3 \times 2y^2x^4 \times 10yx^5 =$

Zero and Negative Exponents

 Evaluate the following expressions.

1) $1^{-5} =$

2) $4^{-1} =$

3) $0^{10} =$

4) $1^{15} =$

5) $5^{-2} =$

6) $3^{-3} =$

7) $9^{-1} =$

8) $10^{-2} =$

9) $12^{-2} =$

10) $2^{-5} =$

11) $3^{-4} =$

12) $2^{-4} =$

13) $6^{-3} =$

14) $10^{-3} =$

15) $30^{-1} =$

16) $15^{-2} =$

17) $4^{-3} =$

18) $2^{-7} =$

19) $5^{-3} =$

20) $4^{-4} =$

21) $3^{-5} =$

22) $10^{-4} =$

23) $2^{-10} =$

24) $8^{-3} =$

25) $20^{-2} =$

26) $14^{-2} =$

27) $9^{-3} =$

28) $100^{-2} =$

29) $5^{-4} =$

30) $4^{-6} =$

31) $\left(\frac{1}{4}\right)^{-3} =$

32) $\left(\frac{1}{6}\right)^{-2} =$

33) $\left(\frac{1}{7}\right)^{-2} =$

34) $\left(\frac{2}{3}\right)^{-3} =$

35) $\left(\frac{1}{13}\right)^{-2} =$

36) $\left(\frac{7}{12}\right)^{-2} =$

37) $\left(\frac{1}{6}\right)^{-3} =$

38) $\left(\frac{1}{300}\right)^{-2} =$

39) $\left(\frac{2}{9}\right)^{-2} =$

40) $\left(\frac{7}{5}\right)^{-1} =$

41) $\left(\frac{13}{23}\right)^0 =$

42) $\left(\frac{1}{4}\right)^{-5} =$

Division Property of Exponents

 Simplify.

1) $\frac{5^6}{5^7} =$

8) $\frac{10 \times 10^9}{10^2 \times 10^7} =$

15) $\frac{2x^7}{9x} =$

2) $\frac{8^8}{8^6} =$

9) $\frac{7^5 \times 7^7}{7^4 \times 7^8} =$

16) $\frac{49x^8y^6}{7x^9} =$

3) $\frac{4^5}{4} =$

10) $\frac{15x}{30x^6} =$

17) $\frac{48x^2}{24x^6y^{12}} =$

4) $\frac{3}{3^5} =$

11) $\frac{3x^9}{4x^4} =$

18) $\frac{30yx^5}{6yx^7} =$

5) $\frac{x}{x^6} =$

12) $\frac{15x^8}{10x^9} =$

19) $\frac{19x^7y}{38x^{12}y^4} =$

6) $\frac{3 \times 3^2}{3^2 \times 3^5} =$

13) $\frac{42x^5}{6y^9} =$

20) $\frac{9x^8}{63x^8} =$

7) $\frac{9^4}{9^2} =$

14) $\frac{36y^8}{4x^4y^5} =$

21) $\frac{9x^{-9}}{4x^{-3}} =$

Powers of Products and Quotients

 Simplify.

1) $(4^3)^2 =$

2) $(2^3)^4 =$

3) $(2 \times 2^3)^2 =$

4) $(5 \times 5^5)^6 =$

5) $(19^4 \times 19^2)^3 =$

6) $(2^3 \times 2^4)^4 =$

7) $(5 \times 5^2)^2 =$

8) $(4^4)^4 =$

9) $(8x^5)^2 =$

10) $(3x^2y^4)^4 =$

11) $(7x^5y^2)^2 =$

12) $(5x^4y^4)^3 =$

13) $(2x^3y^3)^5 =$

14) $(10x^3y^4)^3 =$

15) $(13y^3y)^2 =$

16) $(5x^6x^4)^2 =$

17) $(6x^7y^6)^3 =$

18) $(12x^5x^7)^2 =$

19) $(2x^4 \times 2x)^4 =$

20) $(2x^4y^3)^5 =$

21) $(15x^7y^2)^2 =$

22) $(8x^3y^5)^3 =$

23) $(3x \times 2y^2)^4 =$

24) $\left(\frac{4x}{x^5}\right)^2 =$

25) $\left(\frac{x^4y^5}{x^3y^5}\right)^9 =$

26) $\left(\frac{36xy}{6x^5}\right)^3 =$

27) $\left(\frac{x^7}{x^8y^2}\right)^6 =$

28) $\left(\frac{xy^4}{x^3y^6}\right)^{-3} =$

29) $\left(\frac{5xy^8}{x^3}\right)^2 =$

30) $\left(\frac{xy^6}{2xy^3}\right)^{-4} =$

Negative Exponents and Negative Bases **Simplify.**

1) $-9^{-1} =$

2) $-9^{-2} =$

3) $-2^{-5} =$

4) $-x^{-7} =$

5) $11x^{-1} =$

6) $-8x^{-3} =$

7) $-12x^{-5} =$

8) $-9x^{-8}y^{-6} =$

9) $32x^{-5}y^{-1} =$

10) $10a^{-9}b^{-3} =$

11) $-17x^4y^{-6} =$

12) $-\frac{25}{x^{-5}} =$

13) $-\frac{13x}{a^{-7}} =$

14) $(-\frac{1}{3})^{-4} =$

15) $(-\frac{3}{4})^{-2} =$

16) $-\frac{14}{a^{-6}b^{-3}} =$

17) $-\frac{7x}{x^{-8}} =$

18) $-\frac{a^{-9}}{b^{-5}} =$

19) $-\frac{11}{x^{-5}} =$

20) $\frac{8b}{-16c^{-6}} =$

21) $\frac{12ab}{a^{-4}b^{-3}} =$

22) $-\frac{8n^{-4}}{32p^{-7}} =$

23) $\frac{16ab^{-6}}{-6c^{-5}} =$

24) $(\frac{10a}{5c})^{-4} =$

25) $(-\frac{12x}{4yz})^{-3} =$

26) $\frac{8ab^{-7}}{-5c^{-3}} =$

27) $(-\frac{x^4}{x^5})^{-5} =$

28) $(-\frac{x^{-2}}{7x^3})^{-2} =$

29) $(-\frac{x^{-4}}{x^2})^{-6} =$

Answers of Worksheets**Adding and Subtracting Integers**

- | | | | |
|--------|---------|---------|--------|
| 1) 8 | 8) 13 | 15) 42 | 22) 9 |
| 2) -33 | 9) 29 | 16) 36 | 23) 15 |
| 3) -23 | 10) 34 | 17) 101 | 24) 11 |
| 4) 38 | 11) -11 | 18) 40 | 25) 49 |
| 5) -19 | 12) 39 | 19) 32 | 26) 38 |
| 6) 24 | 13) -56 | 20) 112 | |
| 7) 33 | 14) 53 | 21) 40 | |

Multiplying and Dividing Integers

- | | | | |
|--------|----------|---------|---------|
| 1) 45 | 8) -300 | 15) 8 | 22) 19 |
| 2) -27 | 9) -120 | 16) 12 | 23) 30 |
| 3) -96 | 10) -400 | 17) -18 | 24) -15 |
| 4) 140 | 11) -6 | 18) 26 | 25) 26 |
| 5) 90 | 12) 8 | 19) -17 | 26) -9 |
| 6) -88 | 13) 5 | 20) -21 | |
| 7) 324 | 14) -27 | 21) 23 | |

Order of Operations

- | | | | |
|-------|--------|---------|---------|
| 1) 27 | 6) 24 | 11) 40 | 16) 56 |
| 2) -4 | 7) -16 | 12) 36 | 17) 5 |
| 3) 92 | 8) 50 | 13) -7 | 18) 74 |
| 4) -7 | 9) 43 | 14) 10 | 19) 60 |
| 5) 33 | 10) 27 | 15) 576 | 20) -47 |

Ordering Integers and Numbers

- | | |
|--------------------------|---------------------------|
| 1) -10, -5, -3, 4, 8 | 7) 36, 18, -10, -16, -18 |
| 2) -18, -10, 6, 14, 27 | 8) 94, 34, 27, -12, -24 |
| 3) -23, -21, -8, 15, 21 | 9) 50, 42, -2, -13, -21 |
| 4) -40, -14, -12, 23, 47 | 10) 86, 46, 37, -16, -20 |
| 5) -57, -54, 32, 36, 59 | 11) 88, 75, -18, -26, -59 |
| 6) -34, -19, 26, 47, 68 | 12) 14, 3, -25, -30, -65 |