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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
- ✓ Sets

“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) $1^{-5} =$

17) $4^{-3} =$

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

2) $4^{-1} =$

18) $2^{-7} =$

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

3) $0^{10} =$

19) $5^{-3} =$

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

4) $1^{15} =$

20) $4^{-4} =$

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

5) $5^{-2} =$

21) $3^{-5} =$

6) $3^{-3} =$

22) $10^{-4} =$

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

7) $9^{-1} =$

23) $2^{-10} =$

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

8) $10^{-2} =$

24) $8^{-3} =$

9) $12^{-2} =$

25) $20^{-2} =$

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

10) $2^{-5} =$

26) $14^{-2} =$

11) $3^{-4} =$

27) $9^{-3} =$

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

12) $2^{-4} =$

28) $100^{-2} =$

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

13) $6^{-3} =$

29) $5^{-4} =$

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

14) $10^{-3} =$

30) $4^{-6} =$

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

15) $30^{-1} =$

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

16) $15^{-2} =$

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

Sets

 Given $A = \{3, 4, 5, 7, 13\}$, $B = \{1, 6, 9, 10\}$, and $C = \{4, 6, 7, 10\}$, find:

1) $A \cup C$ _____

6) $A \cap C$ _____

2) $A \cup B$ _____

7) $(C \cup B) \cup A$ _____

3) $B \cup C$ _____

8) $(A \cup C) \cap B$ _____

4) $C \cap B$ _____

9) $(C \cap B) \cap A$ _____

5) $A \cap B$ _____

10) $(B \cup A) \cap C$ _____

 Refer to the diagram below to find each set.

11) $A \cup B$ _____

12) $A \cup C$ _____

13) $C \cup B$ _____

14) $A \cap C$ _____

15) $B \cap C$ _____

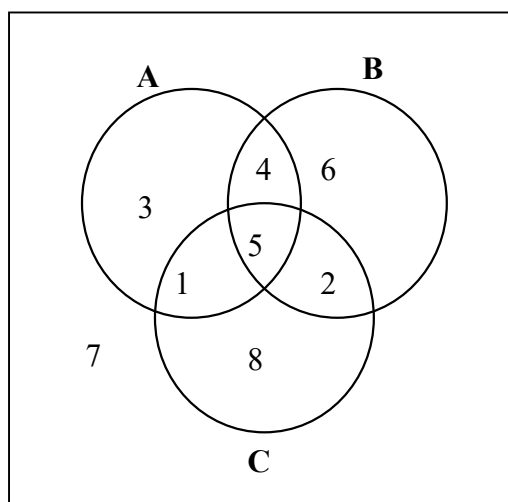
16) $B \cap A$ _____

17) $(A \cup C) \cup B$ _____

18) $(C \cup B) \cap A$ _____

19) $(A \cap B) \cap C$ _____

20) $(A \cup C) \cap B$ _____



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, $-25, -30, -65$ |