

Name \_\_\_\_\_  
Date \_\_\_\_\_

MTH-135 Introduction to Technical Mathematics  
Class #1 - A

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**Knowing YOUR Perfect Squared Numbers**

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Quality – Accuracy – Transfer – 100%

Complete the Following Table

1	2(1)	_____	$1^2$	_____	6	2(6)	_____	$6^2$	_____
2	2(2)	_____	$2^2$	_____	7	2(7)	_____	$7^2$	_____
3	2(3)	_____	$3^2$	_____	8	2(8)	_____	$8^2$	_____
4	2(4)	_____	$4^2$	_____	9	2(9)	_____	$9^2$	_____
5	2(5)	_____	$5^2$	_____	10	2(10)	_____	$10^2$	_____

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11	2(11)	_____	$11^2$	_____	16	2(16)	_____	$16^2$	_____
12	2(12)	_____	$12^2$	_____	17	2(17)	_____	$17^2$	_____
13	2(13)	_____	$13^2$	_____	18	2(18)	_____	$18^2$	_____
14	2(14)	_____	$14^2$	_____	19	2(19)	_____	$19^2$	_____
15	2(15)	_____	$15^2$	_____	20	2(20)	_____	$20^2$	_____

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21	2(21)	_____	$21^2$	_____
22	2(22)	_____	$22^2$	_____
23	2(23)	_____	$23^2$	_____
24	2(24)	_____	$24^2$	_____
25	2(25)	_____	$25^2$	_____



Perfect Cubes

1	_____	$1^3$	_____
2	_____	$2^3$	_____
3	_____	$3^3$	_____
4	_____	$4^3$	_____
5	_____	$5^3$	_____
6	_____	$6^3$	_____
7	_____	$7^3$	_____
8	_____	$8^3$	_____
9	_____	$9^3$	_____
10	_____	$10^3$	_____

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**Chapter 1 – Topics and Skills**

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**Section 1. Short Division – Try Your Best.**

1.  $9\overline{)153}$

2.  $7\overline{)231}$

3.  $5\overline{)165}$

4.  $4\overline{)224}$

5.  $3\overline{)265}$

6.  $2\overline{)725}$

**Section 2. Divisibility Rules – Whole Numbers.**

1. A number is divisible by \_\_\_\_\_ if \_\_\_\_\_
2. A number is divisible by \_\_\_\_\_ if \_\_\_\_\_
3. A number is divisible by \_\_\_\_\_ if \_\_\_\_\_
4. A number is divisible by \_\_\_\_\_ if \_\_\_\_\_
5. A number is divisible by \_\_\_\_\_ if \_\_\_\_\_
6. A number is divisible by \_\_\_\_\_ if \_\_\_\_\_
7. A number is divisible by \_\_\_\_\_ if \_\_\_\_\_
8. A number is divisible by \_\_\_\_\_ if \_\_\_\_\_
9. A number is divisible by \_\_\_\_\_ if \_\_\_\_\_
10. A number is divisible by \_\_\_\_\_ if \_\_\_\_\_
11. A number is divisible by \_\_\_\_\_ if \_\_\_\_\_
12. A number is divisible by \_\_\_\_\_ if \_\_\_\_\_

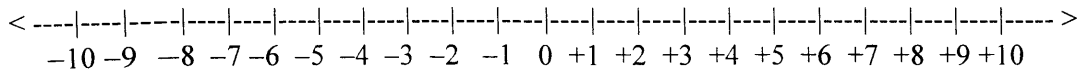
**\*\*Beyond these Rules, students may check results on a calculator.**

Determine whether the following numbers are divisible by 2 3 4 5 6 8 9 10 12 15. Circle all that apply:

- |        |                        |        |                        |
|--------|------------------------|--------|------------------------|
| 1. 117 | 2 3 4 5 6 8 9 10 12 15 | 4. 80  | 2 3 4 5 6 8 9 10 12 15 |
| 2. 164 | 2 3 4 5 6 8 9 10 12 15 | 5. 90  | 2 3 4 5 6 8 9 10 12 15 |
| 3. 120 | 2 3 4 5 6 8 9 10 12 15 | 6. 150 | 2 3 4 5 6 8 9 10 12 15 |

**Section 3. Number Theory and the Operations of Arithmetic**

1. The **REAL NUMBER LINE**



2. Absolute Value: Written in the symbols \_\_\_\_\_.

3. Write the Absolute Values for the Following:

a.  $|-5|$  \_\_\_\_\_ b.  $|+7|$  \_\_\_\_\_ c.  $|-13|$  \_\_\_\_\_

d.  $|+9|$  \_\_\_\_\_ e.  $|0|$  \_\_\_\_\_ f.  $-|-5|$  \_\_\_\_\_

4. The Opposite of an Integer: Symbolically: \_\_\_\_\_.

5. What is the Opposite for the following numbers.

a.  $-(-4)$  \_\_\_\_\_ b.  $-(+6)$  \_\_\_\_\_ c.  $-(-11)$  \_\_\_\_\_

d.  $-(-(+6))$  \_\_\_\_\_ e.  $-(-(-9))$  \_\_\_\_\_ f.  $-(-(-(-12)))$  \_\_\_\_\_

6. In the last three expressions, what did you notice appear as a pattern? \_\_\_\_\_

7. DesCarte's Rule of Signs: Simplifying Single Terms, Products, or Quotients.

When Multiplying more than two factors: 1. \_\_\_\_\_

2. \_\_\_\_\_

When Simplifying (Reducing) a Quotient: 1. \_\_\_\_\_

2. \_\_\_\_\_

**Section 4. Signed Number Operations – Combination of Like Terms.**

1. Multiplication and Division:

Rule: \_\_\_\_\_  
\_\_\_\_\_

2. Practice:

a.  $(7)(-9)$  \_\_\_\_\_

f.  $(-1)(-3)(-5)(-2)$  \_\_\_\_\_

b.  $(-7)(12)$  \_\_\_\_\_

g.  $3(-1)(4)(-7)(-2)$  \_\_\_\_\_

c.  $(-2)(-15)$  \_\_\_\_\_

h.  $(32) \div (-4)$  \_\_\_\_\_

d.  $(3)(0)$  \_\_\_\_\_

i.  $(-52) \div (-13)$  \_\_\_\_\_

e.  $(4)(-2)(-3)$  \_\_\_\_\_

j.  $\frac{(-5)(15)}{25(-1)}$  \_\_\_\_\_

4. Define – Term: \_\_\_\_\_  
\_\_\_\_\_

5. Each and Every Term in an Expression will have: \_\_\_\_\_  
\_\_\_\_\_

Addition and Subtraction of Signed Numbers - \_\_\_\_\_

We will replace the words “Plus” and “Minus” with the word: \_\_\_\_\_

**Section 5. Combination of Like Terms.**

6. Addition of Signed Numbers:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

7. Practice:

a.  $5 - 9$  \_\_\_\_\_

b.  $-5 - 10$  \_\_\_\_\_

c.  $10 + 7$  \_\_\_\_\_

d.  $-14 - 5 + 2$  \_\_\_\_\_

e.  $8 - 11 - 4$  \_\_\_\_\_

8. Subtraction of Signed Numbers.

1. \_\_\_\_\_

2. \_\_\_\_\_

9. Practice:

a.  $5 - 9$  \_\_\_\_\_

b.  $-5 - 10$  \_\_\_\_\_

c.  $10 - 7$  \_\_\_\_\_

d.  $-14 - 5 - 2$  \_\_\_\_\_

e.  $8 - 11 - 4$  \_\_\_\_\_

**Section 6: Addition and Subtraction when Terms have more than one sign.**

10 Simplify Each Term to One Sign and Add:

a.  $(-6) + (-9)$   
\_\_\_\_\_  
\_\_\_\_\_

e.  $(-4) - 8 - (-5)$   
\_\_\_\_\_  
\_\_\_\_\_

b.  $(-6) - 4$   
\_\_\_\_\_  
\_\_\_\_\_

f.  $(-6) + (-13) - (-11)$   
\_\_\_\_\_  
\_\_\_\_\_

c.  $7 - (-9)$

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g.  $6 + 5 + (-3)$

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d.  $(-7) - (-6)$

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h.  $3 - (-7) - 9 - (+3)$

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### Section 7. Exponential Expressions

11. Consider:  $-4^2$

$(-4)^2$

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12. Write the Following in "Exponential Notation".

a.  $7 \times 7 \times 7 \times 7 \times 7$

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b.  $-7 \times a \times a \times b \times b \times b$

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c.  $(-5xy)(-5xy)(-5xy)(-5xy)$

---

d.  $-5(2y)(2y)(2y)$

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### Section 8. Order of Operations

13. Sometimes known as: \_\_\_\_\_

P: \_\_\_\_\_

E: \_\_\_\_\_

MD: \_\_\_\_\_

AS: \_\_\_\_\_

14. Simplify the Following:

a.  $(-12) \div (3) - (-2)(5)$

b.  $2 + (2)^3 - (6)^2 \div 3$

c.  $(-3) + (3)^2(4)$

d.  $-(-7) - (-2)^4 - (-6)(2)$

e.  $\frac{5}{2-3} + \frac{(-4)^2}{-2}$

f.  $(7) - (-3)(4) - \frac{(-6)(1)}{-2}$

**Section 6. Writing VERY LARGE and VERY SMALL Numbers.**

Scientific Notation is used to write very large and very small numbers. Numbers that would require a great many zeros as place holders in the number themselves.

The number in scientific notation has two parts: 1.

\_\_\_\_\_

\_\_\_\_\_

2.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

15. Write following numbers in Proper Scientific Notation:

a. 0.0000026 \_\_\_\_\_

b. 14,500,000 \_\_\_\_\_

c. 0.0000824 \_\_\_\_\_

d. 56,000 \_\_\_\_\_



16. Write the following in Proper Standard Notation from the Scientific.

a.  $2.9 \times 10^3$  \_\_\_\_\_

b.  $6.25 \times 10^{-3}$  \_\_\_\_\_

c.  $3.125 \times 10^8$  \_\_\_\_\_

d.  $9.15 \times 10^{-5}$  \_\_\_\_\_

17. Write the following in Proper Scientific Notation

a.  $19.5 \times 10^5$  \_\_\_\_\_ b.  $0.00565 \times 10^9$  \_\_\_\_\_

c.  $123.45 \times 10^{-3}$  \_\_\_\_\_ d.  $900.45 \times 10^7$  \_\_\_\_\_

What did you notice about these simple conversions?

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17. Scientific Notation – Best Left for the Calculator

a.  $(19.3 \times 10^5) + (17.1 \times 10^5)$   
\_\_\_\_\_

b.  $(0.0056 \times 10^2) - (2.8 \times 10^{-3})$   
\_\_\_\_\_

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**Homework Section**

Section	Page(s)	Problem(s)
Chapter 1	42 – 43	1 → 53 All Odd Problems