

DO NOT WRITE ON THIS HANDOUT!

SIGNIFICANT DIGITS WORKSHEET

Give the number of significant digits in each of the following numbers.

1. 8,314.20

5. 600.9

2. 61.08

6. 325.80000

3. 0.03070

7. 0.0057092

4. 20,000

8. 430,200,000,000.0

Round the following numbers to three significant digits.

9. 12.57

11. 96,348

10. 1.700

12. 0.0038579

Follow these instructions! Calculate the following problems to the correct number of significant digits.

- Show the number of decimal places (if adding/subtracting) or the number of significant digits (if multiplying/dividing) in each of the original measurements.
- Show the number of decimal places/significant digits that should be in the final answer.
- Perform the given operation on a calculator and write down all decimals that result from the calculation.
- Round the answer to the correct number of decimal places/significant digits.

13. $\frac{0.746 \text{ ft}^2}{0.092 \text{ ft}}$

14. $3.25 \text{ m} + 14.9 \text{ m} - 5.84 \text{ m}$

15. $(746,000 \text{ m})(0.4251 \text{ sec})(89.32 \text{ m/sec})$

16. $135.8156 \text{ in.} - 0.64283 \text{ in.} + 96.465 \text{ in.}$

17. $\frac{2.00 \text{ mi.}}{(92)(0.4362 \text{ hr.})}$

UNIT CONVERSION

18. Convert 288 m/day to cm/min.

19. Convert 2 cups/sec to gal./hr.

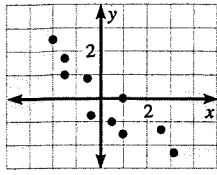
ANSWERS

1. 6
2. 4
3. 4
4. 1
5. 4
6. 8
7. 5
8. 13
9. 12.6
10. 1.70
11. 96,300
12. 0.00386
13. 8.1 ft.
14. 12.3 m
15. 28,300,000 m²
16. 231.638 in.
17. 0.0483 mph
18. 20 cm/min
19. 450 gal/hr

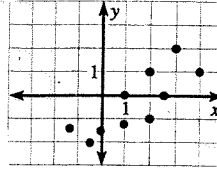
SCATTER PLOTS

1. Label each graph as positive correlation, negative correlation, or no correlation.

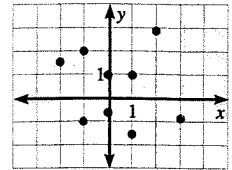
(a)



(b)



(c)



2. Old Faithful is a geyser in Yellowstone National park. The table shows the duration of eruptions and the time interval between eruptions for a typical day. Create a scatter plot of the data on your calculator with the x-axis as the time interval and the y-axis as the duration.

Duration (min)	4.4	3.9	4	4	3.5	4.1	2.3	4.7	1.7	4.9	1.7	4.6	3.4
Interval (min)	78	74	68	76	80	84	50	93	55	76	58	74	75

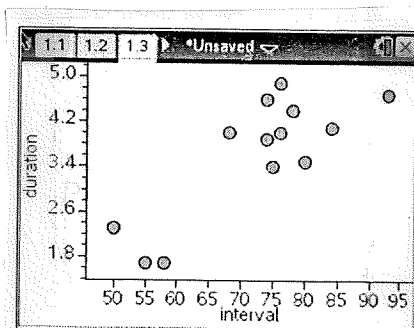
3. The table below give the number (in thousands) of black-and-white and color televisions sold in the United States for various years. Create a scatter plot of the data on your calculator with the x-axis as the year and the y-axis as the number of color TVs sold.

Year	Black-and-white TVs sold (thousands)	Color TVs sold (thousands)
1955	7,738	20
1960	5,709	120
1965	8,753	2,694
1970	4,704	5,320
1975	4,955	6,486
1980	6,684	10,897
1985	3,684	16,995
1990	1,411	20,384
1995	480	25,600

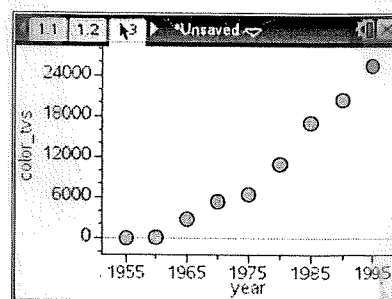
ANSWERS

1. (a) negative (b) positive (c) no correlation

2.



3.



This handout is used for 3 different assignments. Show all work on a separate sheet of paper!

ALGEBRA 2

SOLVING EQUATIONS

Solve the following equations or inequalities:

- $2x - 4(x + 2) = -2x - 8$
- $\frac{3}{2}x - \frac{5}{3} = -\frac{1}{2}x + \frac{19}{4}$
- $\frac{3}{4}(2x - 12) = \frac{2}{3}(2 - 6x) + 1$
- $5(3 - x) = 2 - 5x$
- Rearrange the equation to solve for h : $S = 2\pi rh + 2\pi r^2$

SOLVING INEQUALITIES & COMPOUND INEQUALITIES

Solve each inequality. Graph the solution set:

- $(x - 6)(x + 2) > 0$
- $(2x - 7)(1 - x)(3x + 6) \leq 0$
- $\frac{(x + 4)(2x - 1)}{x - 3} < 0$
- $\frac{5x - 3}{(x + 1)(5 - x)} \geq 0$
- $\frac{x(2x + 9)}{(3x - 5)(6 - x)} \leq 0$
- $\frac{-4}{2x^2(8x - 7)} \geq 0$
- $3x + 5 < -4$ OR $7 - 2x \geq 8$
- $16 - 5x < 4 + 3x \leq 9 - 2x$
- $6 - 3x \geq 9 - 7x$ OR $4x + 5 < 9$
- $-4x + 9 < 8 - 2x \leq 3 + 5x$

ABSOLUTE VALUE EQUATIONS & INEQUALITIES

Solve each problem.

- $3|2x - 3| + 12 = 99$
- $4|2y - 7| + 5 = 9$
- $-2|7 - 3y| - 6 = -14$
- $7 - |3x - 5| = 11$
- $4|3x - 7| > 20$
- $|6x + 25| + 14 \leq 6$
- $25 - 3|2 - x| \geq 1$
- $-5|3 - 2x| - 10 < 0$

SOLVING EQUATIONS ANSWERS

1. **R**
2. $\frac{77}{24}$
3. $\frac{68}{33}$
4. No solution
5. $h = \frac{S - 2\pi r^2}{2\pi r}$

INEQUALITIES ANSWERS

1. $x < -2$ or $x > 6$
2. $-2 \leq x \leq 1$ or $x \geq \frac{7}{2}$
3. $x < -4$ or $\frac{1}{2} < x < 3$
4. $x < -1$ or $\frac{3}{5} \leq x < 5$
5. $x \leq -\frac{9}{2}$ or $0 \leq x < \frac{5}{3}$ or $x > 6$
6. $x < 0$ or $0 < x < \frac{7}{8}$
7. $x \leq -\frac{1}{2}$
8. No solution
9. **R**
10. $x \geq \frac{5}{7}$

ABSOLUTE VALUE ANSWERS

1. -13, 16
2. 3, 4
3. 1, $\frac{11}{3}$
4. No solution
5. $x > 4$ or $x < \frac{2}{3}$
6. No solution
7. $-6 \leq x \leq 10$
8. **R**

MATRIX OPERATIONSPerform the indicated operations by hand. *Show all work on a separate sheet of paper!*

1.
$$\begin{bmatrix} 1 & 6 \\ -1 & -6 \\ 2 & 8 \end{bmatrix} - \begin{bmatrix} 7 & -3 & 9 \\ -2 & -7 & 9 \\ 11 & -1 & 2 \end{bmatrix}$$

2.
$$2 \begin{bmatrix} 7 & -7 \\ -1 & 3 \end{bmatrix} + 4 \begin{bmatrix} 2 & -4 \\ -5 & -6 \end{bmatrix}$$

3.
$$3 \begin{bmatrix} -7 & 1 & 0 \\ 8 & -6 & -2 \end{bmatrix} - 2 \begin{bmatrix} 4 & -1 & -7 \\ -3 & -5 & 5 \end{bmatrix}$$

4.
$$\begin{bmatrix} 1 & -4 \\ 3 & -2 \end{bmatrix} \cdot \begin{bmatrix} 4 & -1 \\ 0 & -3 \end{bmatrix}$$

5.
$$\begin{bmatrix} 2 & -8 & 1 \\ 0 & -5 & 2 \end{bmatrix} \cdot \begin{bmatrix} 0 & 1 & -2 \\ 8 & -2 & -5 \end{bmatrix}$$

6.
$$\begin{bmatrix} -1 & -0.5 & 1.25 \\ 1 & -1.5 & -0.25 \end{bmatrix} \cdot \begin{bmatrix} 1.2 \\ 0.2 \\ 0 \end{bmatrix}$$

7.
$$\begin{bmatrix} 6 & -2 \\ 1 & 4 \\ 0 & 5 \end{bmatrix} \cdot \begin{bmatrix} -4 & -2 & 5 \\ 4 & -6 & -1 \end{bmatrix}$$

Complete the following:

8. a) $[5 \times 9] \cdot [9 \times 11] = \underline{\hspace{2cm}}$ b) $[8 \times 3] \cdot \underline{\hspace{2cm}} = [8 \times 6]$ c) $\underline{\hspace{2cm}} \cdot [4 \times 7] = [2 \times 7]$

Perform the indicated operation using your calculator.

9. (a)
$$\begin{bmatrix} 12,493 & 33,822 & 7,377 \\ 15,840 & 41,095 & 8,980 \\ 25,428 & 67,337 & 14,832 \\ 5,094 & 12,420 & 2,707 \\ 13,655 & 31,125 & 5,511 \end{bmatrix} - \begin{bmatrix} 12,142 & 31,791 & 7,043 \\ 15,814 & 36,554 & 7,857 \\ 22,504 & 53,471 & 10,942 \\ 3,993 & 8,461 & 1,580 \\ 10,693 & 25,001 & 4,331 \end{bmatrix}$$

(b)
$$\begin{bmatrix} 0.201 & 0.348 & 0.180 \\ 0.220 & 0.215 & 0.017 \\ 0.073 & 0.001 & 0.005 \\ 0.113 & 0.014 & 0.405 \end{bmatrix} \cdot \begin{bmatrix} 608,846 \\ 570,906 \\ 586,923 \end{bmatrix}$$

ANSWERS

1. Not possible

$$2. \begin{bmatrix} 22 & -30 \\ -22 & -18 \end{bmatrix}$$

$$3. \begin{bmatrix} -29 & 5 & 14 \\ 30 & -8 & -16 \end{bmatrix}$$

$$4. \begin{bmatrix} 4 & 11 \\ 12 & 3 \end{bmatrix}$$

5. Not possible

$$6. \begin{bmatrix} -1.3 \\ 0.9 \end{bmatrix}$$

$$7. \begin{bmatrix} -32 & 0 & 32 \\ 12 & -26 & 1 \\ 20 & -30 & -5 \end{bmatrix}$$

8. (a) $[5 \times 11]$ (b) $[3 \times 6]$ (c) $[2 \times 4]$

$$9. (a) \begin{bmatrix} 351 & 2031 & 334 \\ 26 & 4541 & 1123 \\ 2924 & 13866 & 3890 \\ 1101 & 3959 & 1127 \\ 2962 & 6124 & 1180 \end{bmatrix}$$

$$(b) \begin{bmatrix} 426,699.474 \\ 266,668.601 \\ 47,951.279 \\ 314,496.097 \end{bmatrix}$$