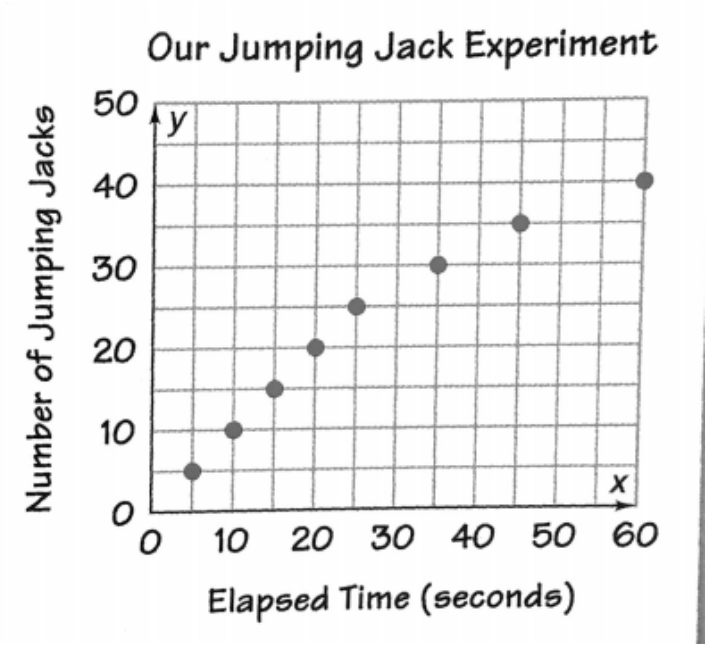
PART 1: PROBLEM INVESTIGATION

1. Some students did a jumping jack experiment. They reported their data in the graph below.



a. According to the graph, how many jumping jacks did the jumper make by the end of 10 seconds? _____ By the end of 20 seconds? _____ By the end of 60 seconds? _____

b. What estimate would make sense for the number of jumping jacks in 30 seconds? _____ In 40 seconds? _____ In 50 seconds? _____

c. What does the overall pattern in the graph show about the rate at which the test jumper completed jumping jacks?

_____

_____

_____

2. Francis earns $5 an hour mowing lawns. He also gets $9 a week allowance. Bella earns $8 an hour babysitting. The earnings for 0-5 hours for each person are shown in the table.

Number of Hours	Francis' Earnings	Bella's Earnings
0	9	0
1	14	8
2	19	16
3	24	24
4	29	32
5	34	40

a. What pattern do you see in Francis' earnings?

_____

_____

b. What pattern do you see in Bella's earnings?

_____

_____

c. Based on the pattern that you observed, at what number of hours will Bella and Francis have the same earnings?

_____

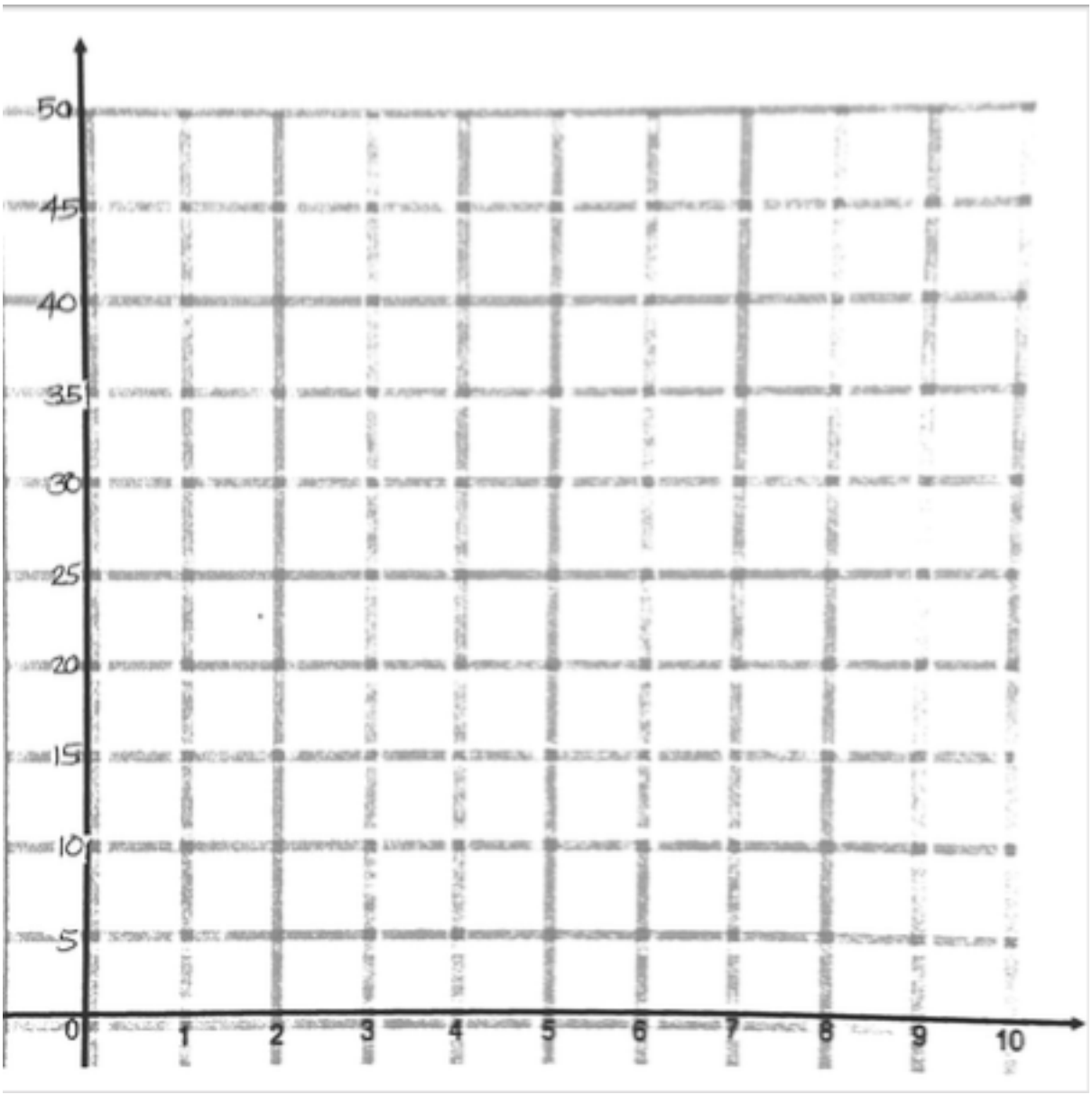
d. What is the independent variable (x-axis) in this situation, the number of hours or the amount of money?

_____

e. What is the dependent variable (y-axis) in this situation, the number of hours or the amount of money?

_____

f. Create a graph for the data. Use different colors for Francis and Bella's earnings.



g. Based on the patterns that you see in the table and the graph, who will earn more if they work for 10 hours? Explain your reasoning.

_____
_____
_____
_____
_____

PART 2: PRACTICE PROBLEMS

3. Operations with Decimals: Solve. Show your work. Do NOT use a calculator!

1.) $5.038 \div 2.96$	2.) $16 + 1.6 \div 0.517$
3.) $27 - 10.4$	4.) $9.006 - 4.44$
5.) $4.8 \cdot 6.9$	6.) $0.05 \cdot 0.7$
7.) $17.03 \div 9$	8.) $4.82 \div 45$

4. Operations with Fractions: Simplify. Write your answer in lowest terms. Do NOT use a calculator.

a.

$$\frac{3}{5}+\frac{1}{3}$$

b.

$$\frac{7}{4}+\frac{5}{8}$$

c.

$$\frac{4}{3}-\frac{4}{5}$$

d.

$$\frac{19}{20}-\frac{1}{2}$$

e.

$$\frac{1}{2}\times\frac{5}{4}$$

f.

$$\frac{1}{4}\times\frac{5}{3}$$

g.

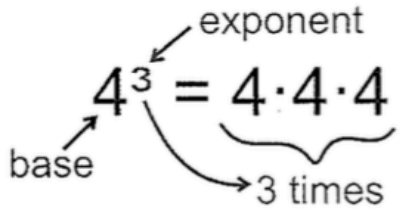
$$\frac{1}{2}\div\frac{1}{2}$$

h.

$$\frac{1}{6}\div\frac{8}{11}$$

5.

Exponents: Follow the directions for each section.



Write each exponent in *expanded form*.

Example: $5^3 = 5 \bullet 5 \bullet 5$

1.) $4^8 =$

2.) $3^5 =$

3.) $6^6 =$

***challenge** 4.) $x^4 =$

Write each in *exponential form*.

Example: $3 \bullet 3 \bullet 3 \bullet 3 = 3^4$

5.) $7 \bullet 7 \bullet 7 =$

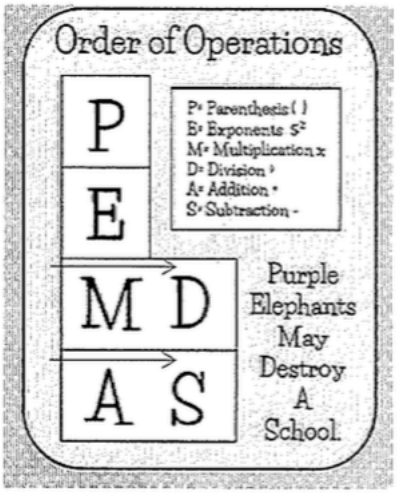
6.) $3 \bullet 3 \bullet 8 \bullet 8 \bullet 8 \bullet 8 =$

***challenge** 7.) $x \bullet x \bullet y \bullet y \bullet y \bullet y \bullet y =$

8.) $9 \bullet 9 \bullet 9 \bullet 9 =$

6.

<u>Order of Operations</u>: Simplify. Show your work and box your answer.



Example:

$13^2 - 2 \cdot 5 + (12 \div 2^2)$

$169 - 2 \cdot 5 + (12 \div 4)$

$169 - 2 \cdot 5 + \quad 3$

$169 - \ 10 \ + \quad 3$

$159 \quad + \quad 3$

$\boxed{162}$

1.) $[36 \div (3 \cdot 4)] + 2$

2.) $60 - 7(5 + 6 \div 2) + 2^4$

3.) $4 + 6(5 - 2)$

4.) $2 + 8 \cdot 3^2$

5.) $24 - 6 \cdot 2$

6.) $4 \cdot 9 + 7 \cdot 8$

7.) $102 - 2^4(3^4 - 51)$

8.) $14 + 8 \div 2 - 1$

7.

Writing Algebraic Expressions:

Use the key words to write an algebraic expression. Simplify if possible.

1.) One-eighth of m.

_____

2.) The product of x and 7.

_____

3.) Subtract 2 from x.

_____

4.) The sum of m and n.

_____

5.) Subtract the product of 5 and x from 7.

_____

6.) Divide y by the sum of 9 and x.

_____

7.) Subtract the cube of y from 15.

_____

9.) 13 less than 5 divided by p.

_____

8.) 4 times the sum of 10 and x.

_____

10.) 5 more than the product of 3 and c.

_____