GUIDED NOTES – 5.8 MODELING USING VARIATION

LEARNING OBJECTIVES

In this section, you will:

- Solve direct variation problems.
- Solve indirect variation problems.
- Sole problems involving joint variation.

SOLVING DIRECT VARIATION PROBLEMS

Study the box in your textbook section titled "direct variation."

- If x and y are related by the form,

$$y = \underline{\hspace{2cm}}$$

then we say that the relationship is _____ variation and y varies _____ with, or is proportional to,

the nth power of x.

- k is a nonzero constant known as the _____ an can be written as $k = $ _____.

Try It: Read Example 1 in the text, then answer the following.

The quantity y varies directly with the square of x. If $y = 24$ when $x = 3$, find y when x is 4.

SOLVING INVERSE VARIATION PROBLEMS

Study the box in your textbook section titled "inverse variation."

- If x and y are related by the form,

$$y = \underline{\hspace{2cm}}$$

then we say that the relationship is _____ variation and y varies _____ with the nth power of

x.

- In inversely proportional relationships, or inverse variations, the constant multiple is $k =$ _____.
- Write out the 4 step process for solving for an unknown, given a description of an indirect variation problem.

    1.

    2.

    3.

    4.

Try It: Read Example 3 in the text, then answer the following.

A quantity y varies inversely with the square of x. If $y = 8$ when $x = 3$, find y when x is 4.

SOLVING PROBLEMS INVOLVING JOINT VARIATION

Study the box in your textbook section titled "joint variation."

- Joint variation occurs when a variable varies directly or inversely with _____.

Try It: Read Example 4 in the text, then answer the following.

A quantity x varies directly with the square of y and inversely with z. If $x = 40$ when $y = 4$ and $z = 3$, find x when $y = 10$ and $z = 25$.