

Graphic Arts
File Resolution Worksheet

Name Key

1. A medium image size photo of 7 x 5 at 300 dpi. Determine the new image size if the photo is used for the following:

	Photo	Web	Newspaper	Yearbook
DPI	300 dpi	72	240	330
Width	7	29.1	8.7	6.3
Height	5	20.8	6.2	4.5

$$y = \frac{k}{x}$$

$$7 = \frac{k}{300}$$

$$k = 2100$$

$$y = \frac{2100}{x}$$

width

$$5 = \frac{k}{300}$$

$$k = 1500$$

$$y = \frac{1500}{x}$$

height

$$y = \frac{2100}{72}$$

$$y = 29.16$$

$$y = \frac{1500}{72}$$

$$y = 20.83$$

$$y = \frac{2100}{240}$$

$$y = 8.75$$

$$y = \frac{1500}{240}$$

$$y = 6.25$$

$$y = \frac{2100}{330}$$

$$y = 6.36$$

$$y = \frac{1500}{330}$$

$$y = 4.545$$

2. A cell phone takes pictures with a resolution of 160 dpi. If you print a 5 inch by 3-inch picture, what are the maximum dimensions that the photo can be without distortion on the web?

$$y = \frac{k}{x}$$

$$5 = \frac{k}{160}$$

$$k = 800$$

$$y = \frac{800}{x}$$

$$3 = \frac{k}{160}$$

$$k = 480$$

$$y = \frac{480}{x}$$

$$y = \frac{800}{72}$$

$$y = \frac{480}{72}$$

$$11.1 \times 6.6$$

3. You take a photo at the fine setting, 300 dpi. The picture is 5 inches by 3 inches. The picture will be published in a yearbook. Without any cropping, what will the size of the picture be?

$$y = \frac{k}{x}$$

$$5 = \frac{k}{300}$$

$$k = 1500$$

$$y = \frac{1500}{x}$$

$$3 = \frac{k}{300}$$

$$k = 900$$

$$y = \frac{900}{x}$$

$$\text{Yearbook} = 330 \text{ dpi}$$

$$y = \frac{1500}{330}$$

$$y = \frac{900}{330}$$

$$4.5 \times 2.7$$

4. If y varies inversely as x with a constant of variation of 8, write the model. What would y be if x = 2?

$$y = \frac{k}{x}$$

$$y = \frac{8}{x}$$

$$y = \frac{8}{2}$$

$$y = 4$$

5. Suppose that x and y vary inversely. Write a function that models $x = 4$ and $y = 2$, then evaluate for $x = 16$.

$$y = \frac{k}{x}$$

$$2 = \frac{k}{4}$$

$$k = 8$$

$$y = \frac{8}{x}$$

$$y = \frac{8}{16}$$

$$y = \frac{1}{2}$$

6. If y varies inversely as x , and $y = 8$ when $x = 3$, write the model. Then use the model to find y when $x = 12$.

$$y = \frac{k}{x}$$

$$8 = \frac{k}{3}$$

$$k = 24$$

$$y = \frac{24}{x}$$

$$y = \frac{24}{12}$$

$$y = 2$$

7. If y varies inversely as x , and $y = 4$ when $x = 2$, write the model. Then use the model to find y when $x = 6$.

$$y = \frac{k}{x}$$

$$4 = \frac{k}{2}$$

$$k = 8$$

$$y = \frac{8}{x}$$

$$y = \frac{8}{6}$$

$$y = \frac{4}{3}$$

8. The area of a circle varies directly with the radius squared. The constant of variation is π . Write the model and determine the area of a circle if the radius is 3.5 inches.

$$A = \pi r^2$$

$$A = \pi 3.5^2$$

$$A = 12.25\pi$$

$$\text{or } 38.5$$

9. Determine if the relationship is direct, inverse, or no variation. If it is direct or inverse, write a model.

x	1	2	4	8
y	6	3	1.5	4/3

$$k = xy = 6$$

Inverse

$$y = \frac{6}{x}$$

10. Determine if the relationship is direct, inverse, or no variation. If it is direct or inverse, write a model.

x	1	2	3	4
y	3.5	7	10.5	14

$$k = \frac{y}{x} = \frac{3.5}{1} = \frac{7}{2} = \frac{10.5}{3} = \frac{14}{4}$$

$$k = 3.5$$

Direct

$$y = 3.5x$$