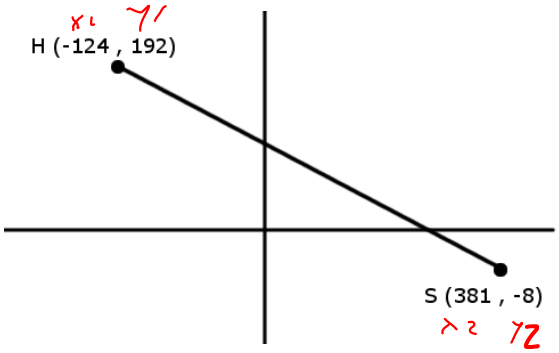
Name: _____
Date: _____

/ 25

Distance, Mid.Pt., Div.Pt. – 06
Practice Test

1. Mikey runs from his home, **H (-124 , 192)** to school, **S (381, -8).**

How far is Mike's run? (*round your answer to the nearest tenth*) **/5**



dist: $\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

$\sqrt{(381-(-124))^2+((-8)-192)^2}$

$\sqrt{505^2+(-200)^2}$

$\sqrt{255\,025+40\,000}$

$\sqrt{295\,025}$

543.162

543.2

Answer: Mike's run convers a distance of 543.2 meters

2. What is the midpoint, **M**, found exactly between points **D (-14 , 62)** and **N (85 , -12)?**

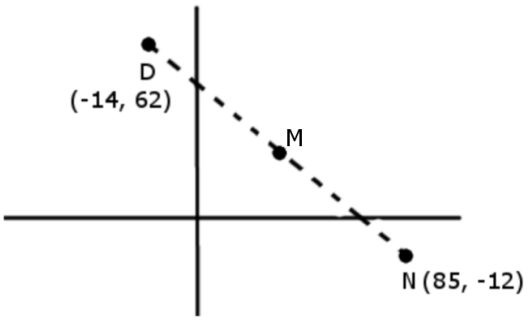
x_m, y_m $\left(\frac{x_1+x_2}{2}\right), \left(\frac{y_1+y_2}{2}\right)$

$\left(\frac{-14+85}{2}\right), \left(\frac{62+(-12)}{2}\right)$

$\left(\frac{71}{2}\right), \left(\frac{50}{2}\right)$

35.5, 25

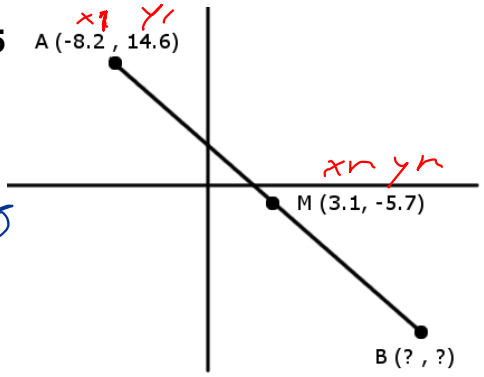
/5



M (35.5 , 25 **)**

3. A straight line is marked at the ends and at the middle.
Given an endpoint at **A (-8.2 , 14.6)** and a midpoint at **M (3.1 , -5.7),**
where would you expect to find the other endpoint**, B?**

/5



$x_m, y_m \left(\frac{x_1+x_2}{2}\right), \left(\frac{y_1+y_2}{2}\right)$

$3.1 = \frac{(-8.2+x)}{2}$, $-5.7 = \frac{(14.6+y)}{2}$

$6.2 = -8.2 + x$, $-11.4 = 14.6 + y$

$+8.2 \quad +8.2$, $-14.6 \quad -14.6$

$14.4 = x$, $-26 = y$

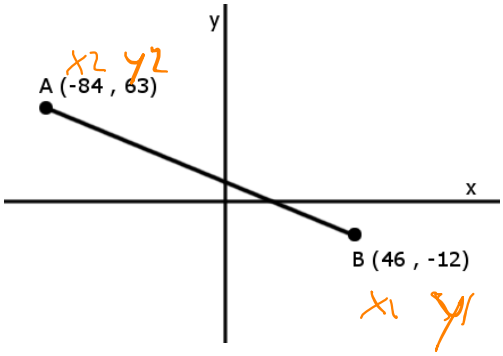
B (14.4 **,** -26 **)**

4. What are the coordinates of a point, D, that divides line BA into a ratio of 2:3, starting from B?

2 + 3 = 5 -> B

/5

A (- 84 , 63)
B (46 , - 12)



$(x_D, y_D) x_1 + \frac{a}{b}(x_2 - x_1), y_1 + \frac{a}{b}(y_2 - y_1)$

$x_D = 46 + \frac{2}{5}(-84 - 46), -12 + \frac{2}{5}(63 - (-12))$

$46 + \frac{2}{5}(-130 \qquad -12 + \frac{2}{5}(75)$

$46 + (-52) \qquad -12 + 30$

-6 , 18

D (-6 **,** 18 **)**

5. A **UFO** is flying along on a path described by the rule: **4y + 4x – 60 = 0**
A **weather balloon** filled with explosive gas is floating along a path described by:
4y = 8x + 12
When the two objects collide, everything within a distance of **15 km is vaporized**.
At that moment, a flock of **geese** is flying at coordinates **(7, -2).**

/5

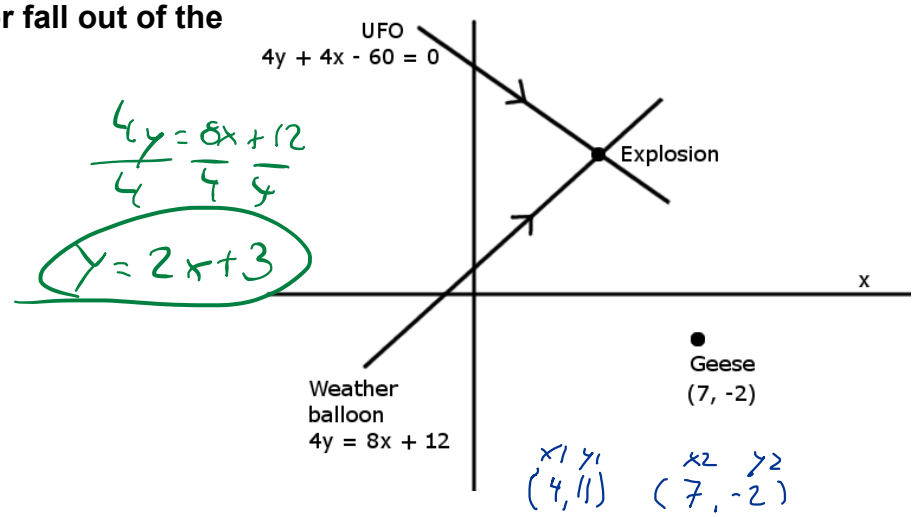
Do the geese avoid the blast or fall out of the sky?

$4y + 4x - 60 = 0$

$-4x \quad +60 \quad -4x + 60$

$\frac{4y}{4} = \frac{-4x}{4} + \frac{60}{4}$

$y = -1x + 15$



$\frac{4y}{4} = \frac{8x}{4} + \frac{12}{4}$

$y = 2x + 3$

$(x_1, y_1) \quad (x_2, y_2)$

$(4, 11) \quad (7, -2)$

$-1x + 15 = 2x + 3$

$+1x \qquad +1x$

$15 = 3x + 3$

$-3 \qquad -3$

$\frac{12}{3} = \frac{3x}{3}$

$4 = x$

$y = -1x + 15$

$y = -1(4) + 15$

$y = -4 + 15$

$y = 11$

distance

$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

$\sqrt{(7 - 4)^2 + (-2 - 11)^2}$

$\sqrt{(3)^2 + (-13)^2}$

$\sqrt{9 + 169}$

$\sqrt{178}$

13.3

Explosion E (4 **,** 11 **)** .
Distance between the E and the geese 13.34 **km** .
Do the geese survive or not? nope .