MAY 23rd Point Slope Cont.

33) $A(3,4)$ $B(4,6)$ — x_1, y_1 and x_2, y_2

$$m = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6-4}{4-3} = \frac{2}{1}$$

$$\frac{2}{1} = \frac{y-4}{x-3} \Rightarrow y-4 = 2(x-3)$$

$$y-4 = 2x-6$$

$$+4 \quad +4$$

$$y = 2x-6+4$$

$$y = 2x-2$$

$$-y \quad -y$$

$$0 = 2x-2-y$$

$$0 = 2x-y-2$$

43) $W(0.3, 0.4)$ $X(0.5, 0.7)$

x_1 y_1 x_2 y_2

$$m = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{0.7 - 0.4}{0.5 - 0.3} = \boxed{\frac{0.3}{0.2}}$$

SLOPE FORMULA

$$\frac{0.3}{0.2} = \frac{y - 0.4}{x - 0.3}$$

$$0.2(y - 0.4) = 0.3(x - 0.3)$$

$$0.2y - 0.08 = 0.3x - 0.09$$

$-0.2y$ $+0.08$ $-0.2y$ $+0.09$

$$0 = 0.08 - 0.2y - 0.09 + 0.3x$$

$\times 100$ $\times 10$ $\times 10$

$$0 = 0.3x - 0.2y - 0.01$$

$$0 = 30x - 20y - 1$$

45) $A\left(\frac{2}{3}, \frac{1}{4}\right)$ $B\left(\frac{1}{3}, \frac{1}{3}\right)$

$x_1\ y_1$ $x_2\ y_2$

$$m = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\frac{1}{3} - \frac{1}{4}}{\frac{1}{3} - \frac{2}{3}} = \frac{\frac{1\times4}{3\times4} - \frac{1\times3}{4\times3}}{\frac{1}{3} - \frac{2}{3}} = \frac{\frac{4}{12} - \frac{3}{12}}{\frac{1}{3} - \frac{2}{3}}$$

$$= \frac{\frac{1}{12}}{\frac{-1}{3}} = \frac{1}{12} \div \frac{-1}{3} = \frac{1}{12} \times \frac{3}{-1} = \frac{-3}{12} = \boxed{\frac{-1}{4}}$$

$m = -\frac{1}{4}$ $A\left(\frac{2}{3}, \frac{1}{4}\right)$

$$\frac{-1}{4} = \frac{y - \frac{1}{4}}{x - \frac{2}{3}}$$

$$4\left(y - \frac{1}{4}\right) = -1\left(x - \frac{2}{3}\right)$$

$$4y - 1 = -x + \frac{2}{3}$$

$\times 1 \quad \times 1$

$$4y + x - 1 = \frac{2}{3}$$

$$x + 4y - \frac{1}{1} - \frac{2}{3} = 0 \quad \times 3 \quad \times 3$$

$$x + 4y \boxed{-\frac{3}{3} - \frac{2}{3}} = 0$$

$$-\frac{3}{3} - \frac{2}{3} = \frac{-3-2}{3}$$

$$\left(x + 4y - \frac{5}{3}\right) \times 3 = 0$$

$$3x + 12y - 5 = 0$$

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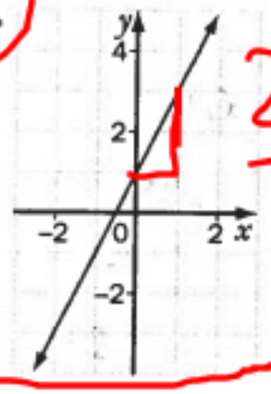
48. (1, −4) and (−3, 12) **49.** (0, −1) and (2, −2)

Given the graph of a line, determine an equation of the line.

50.



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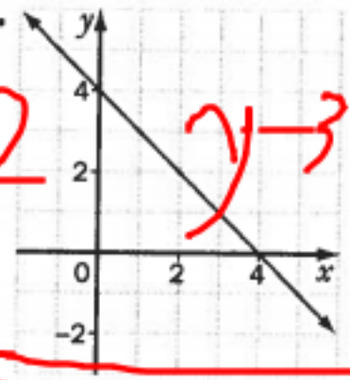

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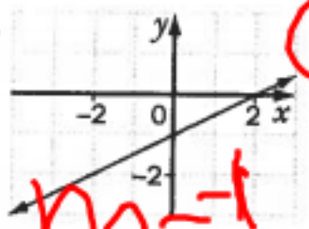

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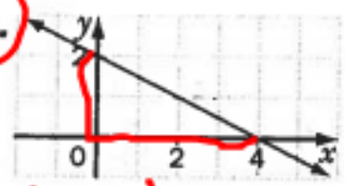

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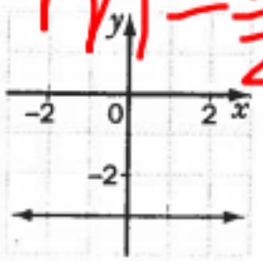

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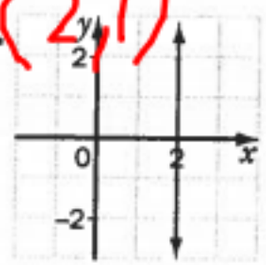


in thousands of metres, for this relation.

b) Using a for altitude and t for time, find an equation of the line.

c) Use the equation to find the time for which the plane can fly at 20 000 m; at 26 000 m.

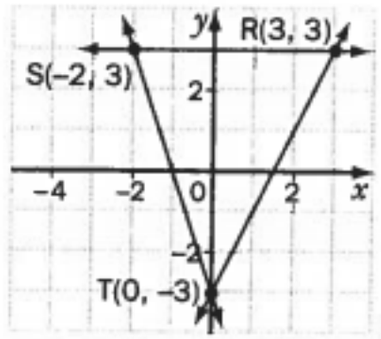
59. Find an equation of the line through $(a, 0)$ and $(0, b)$.

60. What do x_1 and y_1 represent in the point-slope form of an equation?

61. Compare and contrast the graphs of $x = 5$ and $y = 5$.

62. Show that the point (7, 3) is on the line through the points (3, 4) and (−5, 6).

63. Geometry The three lines shown on the grid intersect to form triangle RST. Write the equation for each line in standard form.



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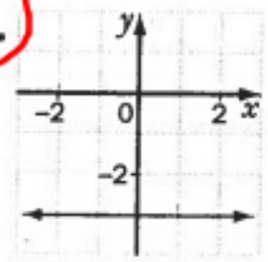

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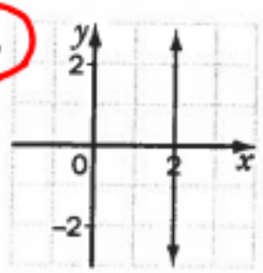
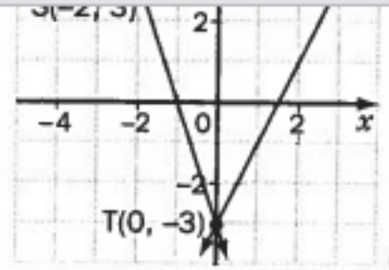


the grid intersect to form triangle RST. Write the equation for each line in standard form.



m = 0 | m = undefined

y = -3 | x = 2

64. Geometry A rectangle has vertices K(2, 4), L(2, −6), M(−1, −6), and N(−1, 4). Write an equation in standard form for each diagonal of the rectangle.

65. The Mariana Trench The Mariana Trench

67. Temperature in the Earth The average temperature on the Earth's surface is 15°C. For every kilometre you go down into the Earth's crust, the temperature increases by 3.5°C.

a) Graph this relation.

b) Find an equation of the line.

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Homework

Box 3 upto 52