Chapter 2 section 2 # Linear Equations

State whether each equation or function is linear. Write yes or no. If no, explain your reasoning.

(16) $2x + y = 11$

yes

(17) $h(x) = \sqrt{2x+1}$

no; there is a variable inside a radical

Write each equation in standard form. Identify A, B, and C.

(18) $\frac{2}{3}x - \frac{3}{4}y = 6$

$12 \cdot \left(\frac{2}{3}x - \frac{3}{4}y\right) = (6) \cdot 12$

$8x - 9y = 72$

$A = 8 \quad B = -9 \quad C = 72$

(19) $0.5x = -0.2y - 0.4$

$+0.2y \qquad +0.2y$

$0.5x + 0.2y = -0.4$

$10(0.5x + 0.2y) = (-0.4) \cdot 10$

$5x + 2y = -4$ $A = 5, B = 2, C = -4$

Linear Equations can be written in Standard Form.

$Ax + By = C$

where A, B, C are integers, $A > 0$, and the largest common factor of A, B, C is one

Not Linear

$x^2, \sqrt{x}$

$x^{-1}, |x|$

$xy, x^{1/3}$

Chapter 2.2 cont...

Find the x-intercept and the y-intercept of the graph of each equation. Then graph the equation.

(20) $-\frac{1}{5}y = x + 4$

x-intercept: (let $y = 0$)

$-\frac{1}{5}(0) = x + 4$

$0 = x + 4$

$-4 \quad -4$

$-4 = x$

x-intercept: $(-4, 0)$

y-intercept: (let $x = 0$)

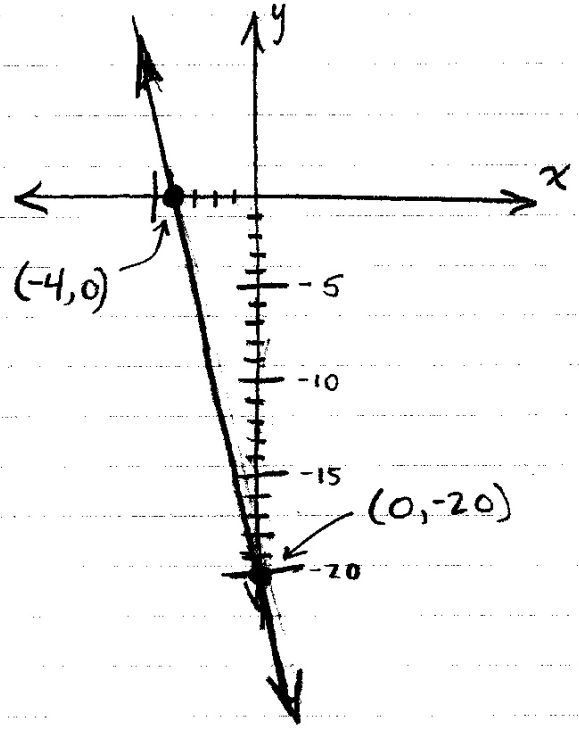
$-\frac{1}{5}y = 0 + 4$

$-\frac{1}{5}y = 4$

$-5 \cdot (-\frac{1}{5}y) = (4) \cdot -5$

$y = -20$

y-intercept: $(0, -20)$



Chapter 2.2 continued

(21) $6x = -12y + 48$

x-intercept: (Let $y = 0$)

$6x = -12(0) + 48$

$6x = 0 + 48$

$\frac{6x}{6} = \frac{48}{6}$

$x = 8$

x-intercept: $(8, 0)$

y-intercept: (let $x = 0$)

$6(0) = -12y + 48$

$0 = -12y + 48$

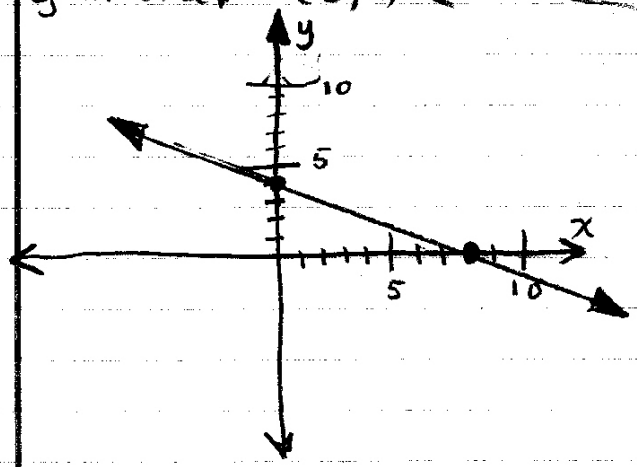
$-48 \quad -48$

$-48 = -12y$

$\frac{-48}{-12} = \frac{-12y}{-12}$

$4 = y$

y-intercept: $(0, 4)$



(22) Julián thinks that the equation for the volume of a cube, $V = s^3$, is a linear equation. Is he correct? Explain.

No he is not correct. It is not linear because one of the variables is raised to a power other than 1 (s^3)

Assignment 2.2
Linear Equations

State whether each equation or function is linear. Write *yes* or *no*. If no, explain your reasoning.

$2x + y = 11$

A) Yes
B) No, there is a variable inside a radical

$h(x) = \sqrt{2x + 1}$

A) Yes
B) No, there is a variable inside a radical

Write each equation in standard form. Identify A, B, and C.

$\frac{2}{3}x - \frac{3}{4}y = 6$

$12\left(\frac{2}{3}x - \frac{3}{4}y\right) = 6 \bullet 12$

□x - □y = □

A = □
B = □
C = □

12 ● 2 = 24

24 ÷ 3 = □

12 ● 3 = 36

36 ÷ 4 = □

6 ● 12 = □

A) 12
B) 8

A) 8.5
B) 40

A) 18
B) 72

$0.5x = -0.2y - 0.4$
$+0.2y \quad +0.2y$
$10(0.5 + 0.2) = (-0.4)10$

□ + □ = □

A = □
B = □
C = □

10 ● 0.5x = □

10 ● 0.2y = □

-0.4 ● 10 = □

A) 5x
B) 50x

A) 2y
B) 20y

A) 4
B) -4

Assignment 2.2
Linear Equations

Find the x-intercept and the y-intercept of the graph of each equation. Then graph the equation.

$-\frac{1}{5}y = x + 4$

x-intercept:
(let y = 0)

$-\frac{1}{5}(0) = x + 4$

0 = x + 4
-4 = - 4
= x

0 – 4 =

A) -4
B) 4

x-intercept: (, 0)

y-intercept:
(let x = 0)

$-\frac{1}{5}y = 0 + 4$

$-\frac{1}{5}y = 4$

$-5 \bullet \left(-\frac{1}{5}y\right) = (4) \bullet -5$

y =

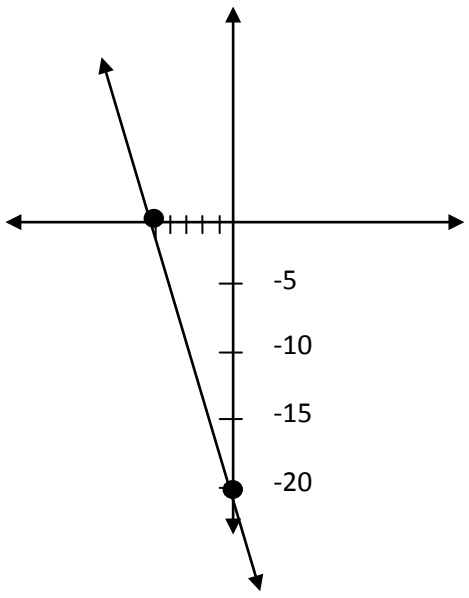
y-intercept: (0,)

0 + 4 = 4

4 ● -5 =

A) -20

B) 9



Choice Strategy

Assignment 2.2
Linear Equations

$6x = -12y + 48$

x-intercept: (Let y = 0)

$6x = -12(0) + 48$

$6x = 0 + 48$

$\frac{6x}{6} = \frac{48}{6}$

$x =$ ☐

x-intercept: (☐ , 0)

-12 ● 0 = 0

0 + 48 = 48

48 ÷ 6 = ☐

A) 42

B) 8

y-intercept:

$6(0) = -12y + 48$

$0 = -12y + 48$

$\frac{-48}{} \quad \frac{-48}{}$

$\frac{-48}{-12} = \frac{-12y}{-12}$

■ = y

y-intercept: (0, ■)

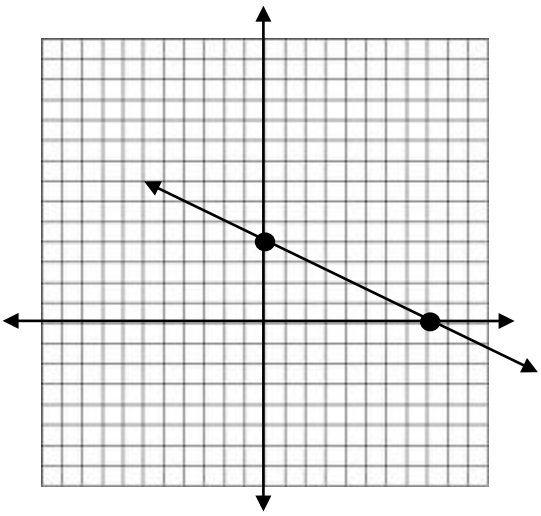
6 ● 0 = 0

0 – 48 = -48

-48 ÷ -12 = ■

A) -4

B) 4



Choice Strategy

CUBES

Julian thinks that the equation for the volume of a cube, $V = s^3$, is a linear equation. Is he correct? Explain.

No, he is not correct. It is not linear because one of the variables is raised to a power other than ___.

A) 1

B) 3

Assignment 2.2
Linear Equations

State whether each equation or function is linear. Write *yes* or *no*. If no, explain your reasoning.

$2x + y = 11$

A) Yes
B) No, there is a variable inside a radical

$h(x) = \sqrt{2x + 1}$

A) Yes
B) No, there is a variable inside a radical

Write each equation in standard form. Identify A, B, and C.

$\frac{2}{3}x - \frac{3}{4}y = 6$

$12\left(\frac{2}{3}x - \frac{3}{4}y\right) = 6 \bullet 12$

□x - □y = □

A = □
B = □
C = □

12 ● 2 = □
□ ÷ 3 = □
12 ● 3 = □
□ ÷ 4 = □
6 ● 12 = □

0.5x = -0.2y – 0.4
+0.2y +0.2y

10 (□ + □) = (□) 10

□ + □ = □

A = □
B = □
C = □

10 ● 0.5x = □
10 ● 0.2y = □
-0.4 ● 10 = □

Assignment 2.2
Linear Equations

Find the x-intercept and the y-intercept of the graph of each equation. Then graph the equation.

$-\frac{1}{5}y = x + 4$

x-intercept:
(let y = 0)

$-\frac{1}{5}(0) = x + 4$

0 – 4 = ▭

0 = x + 4
-4 = - 4
▭ = x

x-intercept: (▭ , 0)

y-intercept:
(let x = 0)

$-\frac{1}{5}y = 0 + 4$

0 + 4 = ▭

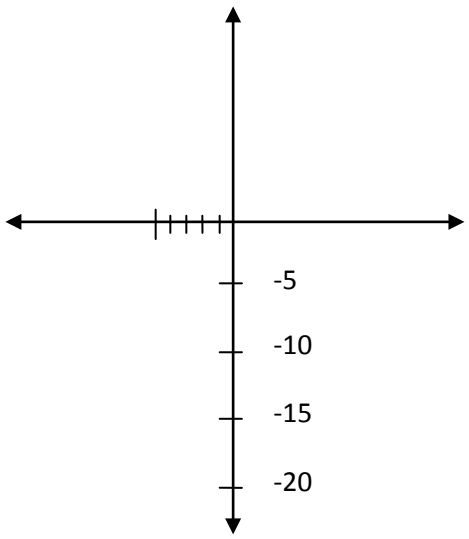
$-\frac{1}{5}y =$ ▭

▭ • -5 = ▭

$-5 \bullet \left(-\frac{1}{5}y\right) = (4) \bullet -5$

y = ▭

y-intercept: (0, ▭)



Assignment 2.2
Linear Equations

6x = -12y +48

x-intercept: (Let y = 0)

6x = -12(0) + 48

6x = ☐ + 48

$\frac{6x}{6} = \frac{☐}{6}$

x = ☐

x-intercept: (☐, 0)

-12 ● 0 = ☐

☐ + 48 = ☐

☐ ÷ 6 = ☐

y-intercept:

6(0) = -12y + 48

☐ = -12y + 48

$\frac{☐}{-12} = \frac{-12y}{-12}$

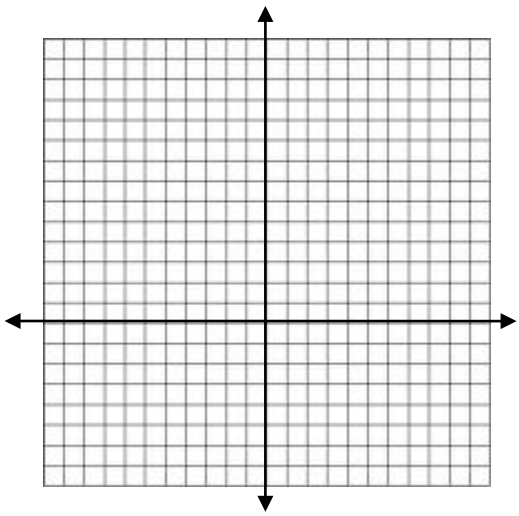
☐ = y

y-intercept: (0, ☐)

6 ● 0 = ☐

☐ – 48 = ☐

☐ ÷ -12 = ☐



Closed Strategy

Assignment 2.2
Linear Equations

CUBES

Julian thinks that the equation for the volume of a cube, $V = s^3$, is a linear equation. Is he correct? Explain.

No, he is not correct. It is not linear because one of the variables is raised to a power other than ___.

Assignment 2.2
Linear Equations

State whether each equation or function is linear. Write *yes* or *no*. If no, explain your reasoning.

$2x + y = 11$

A) Yes
B) No, there is a variable inside a radical

$h(x) = \sqrt{2x + 1}$

A) Yes
B) No, there is a variable inside a radical

Write each equation in standard form. Identify A, B, and C.

$\frac{2}{3}x - \frac{3}{4}y = 6$

$12\left(\frac{2}{3}x - \frac{3}{4}y\right) = 6 \bullet 12$

□x - □y = □

A = □
B = □
C = □

12 ● 2 = 24

24 ÷ 3 = □

12 ● 3 = 36

36 ÷ 4 = □

6 ● 12 = □

$0.5x + 0.2y = -0.2y - 0.4$

$10(0.5 + 0.2) = (-0.4)\,10$

□ + □ = □

A = □
B = □
C = □

10 ● 0.5x = □

10 ● 0.2y = □

-0.4 ● 10 = □

Assignment 2.2
Linear Equations

Find the x-intercept and the y-intercept of the graph of each equation. Then graph the equation.

$-\frac{1}{5}y = x + 4$

x-intercept:
(let y = 0)

$-\frac{1}{5}(0) = x + 4$

0 – 4 = ☐

0 = x + 4
-4 = -4
☐ = x

x-intercept: (☐, 0)

y-intercept:
(let x = 0)

$-\frac{1}{5}y = 0 + 4$

$-\frac{1}{5}y = 4$

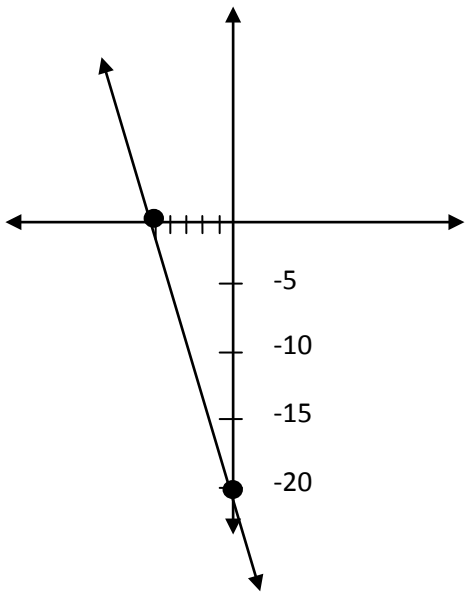
$-5 \bullet \left(-\frac{1}{5}y\right) = (4) \bullet -5$

0 + 4 = 4

4 • -5 = ☐

y = ☐

y-intercept: (0, ☐)



Assignment 2.2
Linear Equations

$6x = -12y + 48$

x-intercept: (Let y = 0)

$6x = -12(0) + 48$

$6x = 0 + 48$

$\frac{6x}{6} = \frac{48}{6}$

$x = \square$

x-intercept: ($\square$, 0)

$-12 \bullet 0 = 0$

$0 + 48 = 48$

$48 \div 6 = \square$

y-intercept:

$6(0) = -12y + 48$

$0 = -12y + 48$

$\frac{-48}{} \quad \frac{-48}{}$

$\frac{-48}{-12} = \frac{-12y}{-12}$

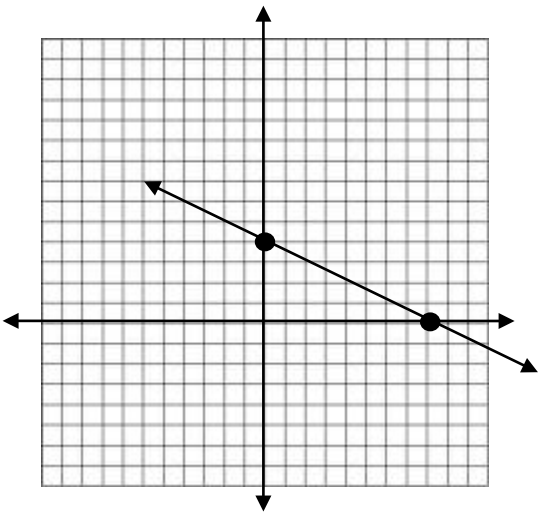
$\square = y$

y-intercept: (0, $\square$)

$6 \bullet 0 = 0$

$0 - 48 = -48$

$-48 \div -12 = \square$



Assignment 2.2
Linear Equations

CUBES

Julian thinks that the equation for the volume of a cube, $V = s^3$, is a linear equation. Is he correct? Explain.

No, he is not correct. It is not linear because one of the variables is raised to a power other than ___.

Assignment 2.2
Linear Equations

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2x + y = 11

$h(x) = \sqrt{2x + 1}$

Write each equation in standard form. Identify A, B, and C.

$\frac{2}{3}x - \frac{3}{4}y = 6$

0.5x = -0.2y – 0.4

Find the x-intercept and the y-intercept of the graph of each equation. Then graph the equation.

$-\frac{1}{5}y = x + 4$

6x = -12y +48

CUBES
Julian thinks that the equation for the volume of a cube, $V = s^3$, is a linear equation. Is he correct? Explain.

Assignment 2.2
Linear Equations

State whether each equation or function is linear. Write *yes* or *no*. If no, explain your reasoning.

$2x + y = 11$

$h(x) = \sqrt{2x + 1}$

Write each equation in standard form. Identify A, B, and C.

$\frac{2}{3}x - \frac{3}{4}y = 6$

Standard form:

A =

B =

C =

$0.5x = -0.2y - 0.4$

Standard form:

A =

B =

C =

Assignment 2.2
Linear Equations

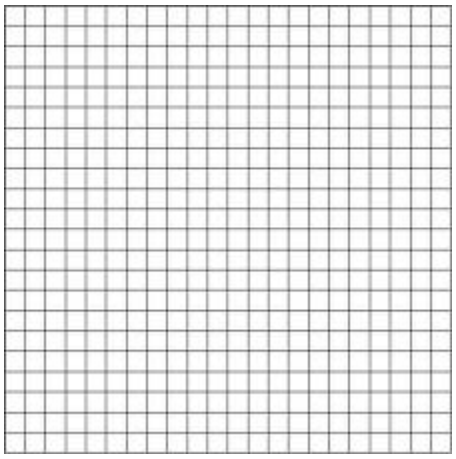
Find the x-intercept and the y-intercept of the graph of each equation. Then graph the equation.

$-\frac{1}{5}y = x + 4$

x-intercept: (let y = 0)

y-intercept: (let x = 0)

graph:



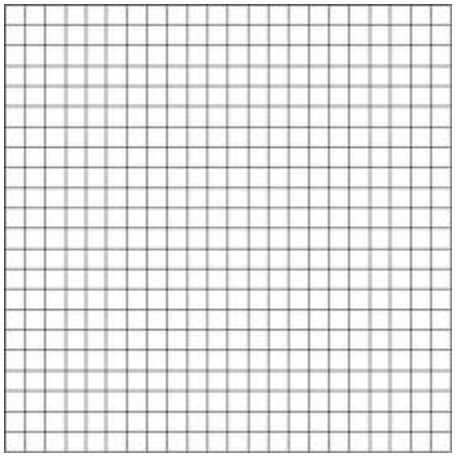
Assignment 2.2
Linear Equations

$6x = -12y + 48$

x-intercept: (let y = 0)

y-intercept: (let x = 0)

graph:



CUBES
Julian thinks that the equation for the volume of a cube, $V = s^3$, is a linear equation.

Is he correct?

Explain.