



WIR SOLUTIONS: SECTIONS 2.1 AND 2.2

This document contains the answers and video solutions to the posed problems. Click the red box to watch the video solution. You can also watch all videos by viewing the [Section 2.1 and 2.2](#). Closed captions are available for all videos and the speed of the videos may be adjusted inside of "Settings" or the cog in the bottom right corner.

Section 2.1

(1) Determine the slope of the line passing through the following points given below.

(a) $(-3, -7)$ and $(5, -2)$

Answer: $\frac{5}{8}$

[Click here to see video solution to problem #1a.](#)

(b) $\left(-\frac{3}{4}, 2\right)$ and $\left(-\frac{3}{4}, 5\right)$

Answer: Undefined

[Click here to see video solution to problem #1b.](#)

(c) $\left(\frac{1}{2}, \frac{3}{5}\right)$ and $\left(-\frac{1}{2}, \frac{3}{5}\right)$

Answer: 0

[Click here to see video solution to problem #1c.](#)

(2) Write the equation of the line which passes through $(4, 12)$ and $(-5, 6)$ in point-slope form, slope-intercept form, and standard form.

Answer:

(a) Point-Slope: $y - 12 = \frac{2}{3}(x - 4)$

[Click here to see video solution to problem #2a.](#)

(b) Slope-Intercept: $y = \frac{2}{3}x + \frac{28}{3}$

[Click here to see video solution to problem #2b.](#)

(c) Standard Form: $-2x + 3y = 28$

[Click here to see video solution to problem #2c.](#)



- (3) Write the equation of the line which passes through $(-2, 31)$ and has an undefined slope in point-slope form, slope-intercept form, and standard form.

Answer:

- (a) Point-Slope: Not Possible

[Click here to see video solution to problem #3a.](#)

- (b) Slope-Intercept: Not Possible

[Click here to see video solution to problem #3b.](#)

- (c) Standard Form: $x = -2$

[Click here to see video solution to problem #3c.](#)

- (4) Write the equation of the line which passes through $(-2, 31)$ and has a slope of zero in point-slope form, slope-intercept form, and standard form.

Answer:

- (a) Point-Slope: $y - 31 = 0(x + 2)$

[Click here to see video solution to problem #4a.](#)

- (b) Slope-Intercept: $y = 31$

[Click here to see video solution to problem #4b.](#)

- (c) Standard Form: $y = 31$

[Click here to see video solution to problem #4c.](#)

- (5) Determine, without the aid of a graphing calculator, the x - and y -intercepts for $5x - 8y = 13$.

Answer:

- (a) x -intercept: $(\frac{13}{5}, 0)$

[Click here to see video solution to problem #5a.](#)

- (b) y -intercept: $(0, -\frac{13}{8})$

[Click here to see video solution to problem #5b.](#)

- (6) Given C is an integer, find the value of C so the line given by $14x + 8y = C$ has an x -intercept of $(4, 0)$.

Answer: $C = 56$

[Click here to see video solution to problem #6.](#)



(7) Without the use of technology, graph the line given by the equations below.

(a) $y = -\frac{3}{5}(x - 1) + 4$

[Click here to see video solution to problem #7a.](#)

(b) $y = \frac{5}{2}x - 3$

[Click here to see video solution to problem #7b.](#)

(c) $x = 5$

[Click here to see video solution to problem #7c.](#)

(8) Given the line $5x - 11y = 2$,

(a) if x increases by 7 units, what is the corresponding change in y ?

Answer: y will increase by $\frac{35}{11}$

[Click here to see video solution to problem #8a.](#)

(b) if y decreases by 32 units, what is the corresponding change in x ?

Answer: x will decrease by 70.4 units.

[Click here to see video solution to problem #8b.](#)

(9) Determine the slope of the line passing through the points $(a, -3)$ and $(5, 3a)$, in terms of a . For what value(s) of a is the slope of the line undefined?

Answer: $a = 5$

[Click here to see video solution to problem #9.](#)

Section 2.2

(10) An item initially purchased for \$3425 has a scrap value of \$250 after 8 years. Assuming the item is depreciating linearly with time, write the value of the item (in dollars) as a function of time (in years since purchase).

Answer: For $0 \leq t \leq 8$, $V(t) = -\frac{3175}{8}t + 3425$, For $t > 8$, $V(t) = 250$

[Click here to see video solution to problem #10.](#)

(11) A bicycle shop manufacturers small bicycle pumps for riders to mount to their bikes. The shop sells each pump for \$12. The cost of producing each unit is \$4.80. The fixed costs incurred by the division are \$50,000. Find:

(a) The shop's linear cost function for producing x small bicycle pumps.

Answer: $C(x) = 4.8x + 50000$

[Click here to see video solution to problem #11a.](#)



- (b) The shop's linear revenue function for selling x small bicycle pumps.

Answer: $R(x) = 12x$

[Click here to see video solution to problem #11b.](#)

- (c) The shop's linear profit function for producing and selling x small bicycle pumps.

Answer: $P(x) = 7.2x - 50000$

[Click here to see video solution to problem #11c.](#)

- (12) The total cost of producing 40 items for a certain company is \$13,243. The revenue earned from selling 125 items is \$15,406.25

- (a) If the company's fixed costs are 12,225, find the company's linear cost function.

Answer: $C(x) = 25.45x + 12,225$

[Click here to see video solution to problem #12a.](#)

- (b) Find the company's linear revenue function.

Answer: $R(x) = 123.25x$

[Click here to see video solution to problem #12b.](#)

- (c) Find the company's linear profit function.

Answer: $P(x) = 97.8x - 12,225$

[Click here to see video solution to problem #12c.](#)

- (13) The quantity demanded for a certain brand of portable CD players is 200 units when the unit price is set at \$72. The quantity demanded is 1200 units when the unit price is \$32. Find the demand equation, assuming the demand equation is linear.

Answer: $p(x) = -0.04x + 80$

[Click here to see video solution to problem #13.](#)

- (14) A producer will not supply any items when the price is \$65 or lower, but when the price per item is \$100, the producer is willing to supply 850 items. Construct the linear supply function, $p(x)$, where p is in dollars and x is the number of items supplied.

Answer: $p(x) = \frac{7}{170}x + 65$

[Click here to see video solution to problem #14.](#)