MA 104 INTRODUCTORY ALGEBRA

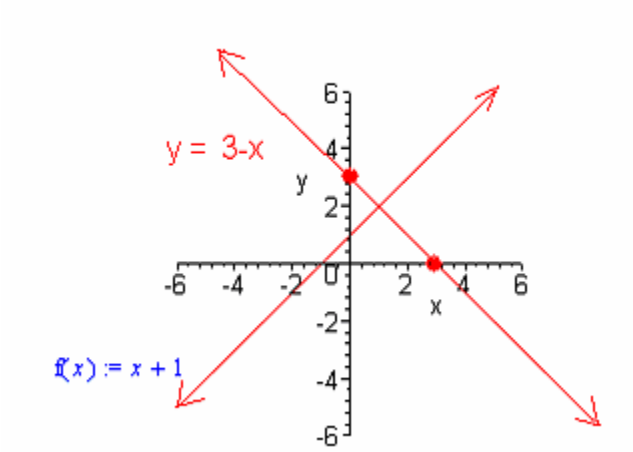
-A JUST IN TIME APPROACH-

PRACTICE TEST THREE

Sections: 3.4, 4.1, 4.2, 4.3, 4.4, 4.5.

Use the graph as needed to do the following. [3.4.]

1.



a) Find the point of intersection of the two lines.
b) Substitute the intersection point into each equation shown on the graph.
c) Solve the equation.

2. Solve the variable. [3.4.]

a) $5-3(x-4)=x+9$

b) $-2(x-3)=\frac{1}{2}x+3$

3. Find the $6\frac{1}{2}\%$ tax on a meal.

Solve the following formula for the specified variable. [4.1]

4. V = k + g t for t

5. $-4=\frac{r}{2}-2$ for r

6. $P=2l+2w$ for w

7. $\frac{P_1V_1}{T_1}=\frac{P_2V_2}{T_2}$ for V_2

8. $E=\frac{T_h-T_c}{T_h}$ for T_h

9. Solve for y in terms of x. [4.1]

a) xy-1 = - (-3)
b) x +2y = 3x -5
c) $\frac{3}{2}(1.2x-9y)=0$

10. Which of the following describe a function? State the domain and range of each. [4.2]

a) (-1,2),(0,9),(1,-2),(0,-3),(-1,5)
b) (0,8),(1,12),(3,7),(5,-3),(7,4)

11. Find f (-1), f (0), f (1), f (2) for the following function. Sketch the ordered pair. f (x) =3x-2. Solve for the point (x, 0) and explain how you could have found x without solving the equation.

12. Find x if f(x) = 0 for the following exercise. [4.2]
a) f (x) = -3(x-2)
b) f (x) = 7x +2 -3 (1+x) -2
c) f (x) = -5(1-x)-6-3x

13. The following table represents the cost of renting a car for one day. [4.4]

Miles driven in one day	0	100	200	300
Cost	23	43	63	83

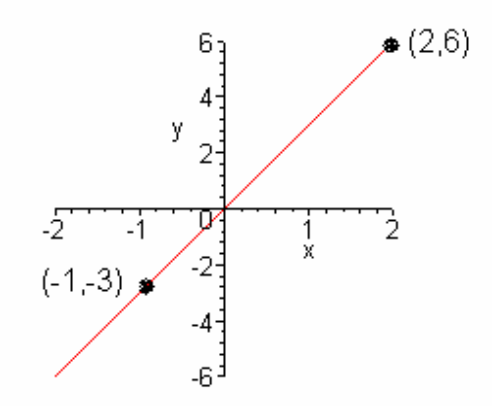
a) Find a linear equation for the above data.
b) What are the intercepts? Explain the meaning of the intercepts.
c) What is the cost of driving 350 miles?
d) What is the number of miles that can be driven for $53.00?

14. Water freezes at 0^0 Celsius and 32^0 Fahrenheit. Water boils at 100^0 C and $212^0 F$. Let the Celsius temperature C be the input and the Fahrenheit temperature F be the output. [4.4]

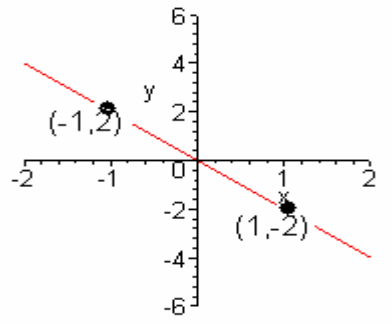
a) Write the linear equation.
b) What is the y-intercept.

15. Use the rise and run in the graph to find the slope of the following lines. State whether the slope of each line is positive, negative, zero, or undefined. Wrtie an equation for the line passing through the two given ordered pairs. [4.1, 4.5]

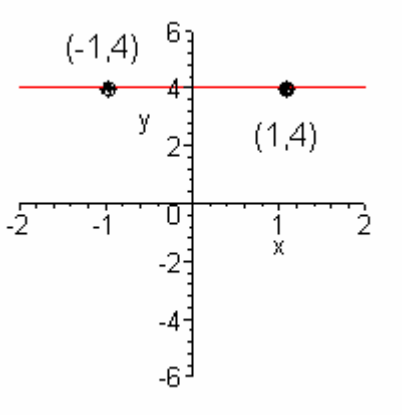
a)



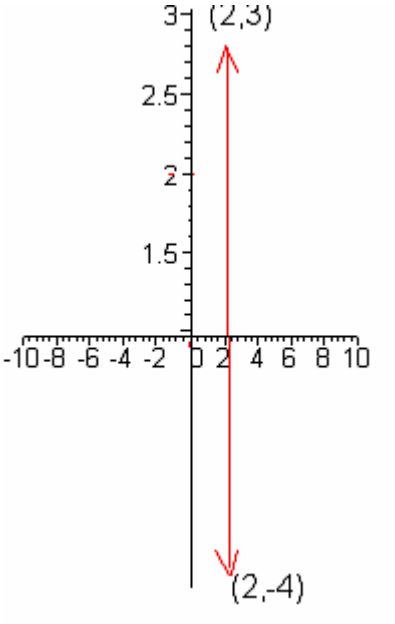
b)



c)



d)



16. State whether the table represents a linear function. Find the slope. [4.4]

a)

x	1	2	3	4	5
f(x)	1	4	7	10	13

b)

x	1	2	3	4	5
f(x)	2	8	18	32	50

17. Plot the point, and draw a line with the given slope through the point. [4.3, 4.4]

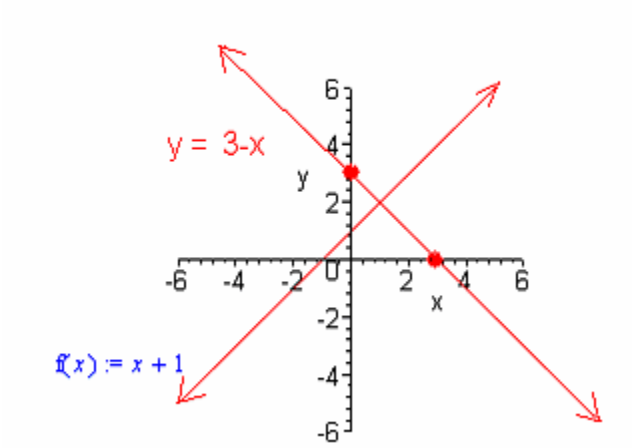
a) m = -2 and (3,0)
b) m = ½ and (2,-3)

18. A long – distance call costs $1.25 for 5 minutes and $2.30 for 10 minutes. [4.3, 4. 5]
a) How much will a 25 minute call cost?
b) How long could you talk for $5.00?

19. Identify the slope and y-intercept of each line. [4.4]
a) C (m) = 15 +0.20m
b) d A = $\frac{45}{7}t + 25$

20. Sketch a graph and find an equation of each line as described [4.4, 4 .5]
a) Parallel to y = 2x-3 through (0,-1)
b) Horizontal line through (-3, 5)

Answers:



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a) (1, 2); b) 2 = 3-1, 2 = 1+1; c) x+1 = 3 – x→ x = 1;

2 a) x = 2; b) $1\frac{1}{5}$

3 x = cost of meal; y = tax; y = 0.065x.

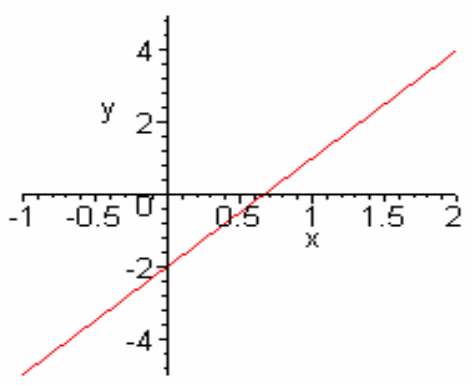
4) $\frac{v-k}{g}=t$; 5) r = -4; 6) $\frac{P-2l}{2}=w$; 7) $V_2=\frac{P_1V_1T_2}{T_1P_2}$; 8) $T_h=\frac{T_c}{1-E}$;

9a) $y=\frac{4}{x}$; b) $y=\frac{2x-5}{2}$; c) $y=\frac{1.8x}{13.5}$

10 a) Not a function; Domain:[-1,0,1]; Range: [-3,-2,2,5,9]
b) Function. Domain: [0,1,3,5,7]; Range: [-3,4,7,8,12]

11a) f(x) = 3x-2
f(-1)= -5; f(0) = -2; f(1) =1; f(2) = 4
The point (x,0) = ((2/3,0) Look at the x intercept.

$f(x) := 3x - 2$



12a) x =2; b) x = 0.75; c) x = 5.5.

13a) $f(x) := \frac{x}{5} + 23$ b) x-intercept: -115 -> cannot drive negative miles. Y-intercepts: 23 cost per day. Down payment to rent the car is $23.00
c) $93.00; d) 150 miles.

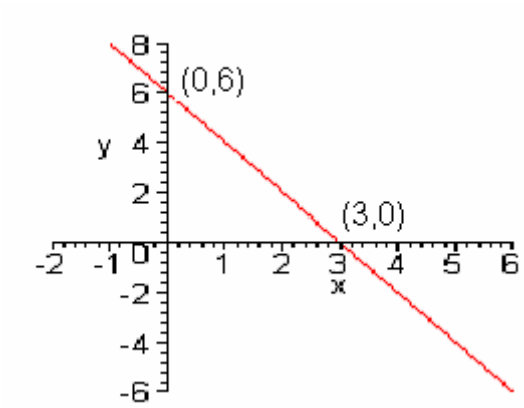
14. a) $F = \frac{9}{5}C + 32$; b) y –intercept = 32.

15a) m = 3, positive; $f(x) := 3x$

b) m = -2, negative; $f(x) := -2x$; c) m = 0. $f(x) := 4$; d) = = undefined, $x := 2$

16a) Linear, slope = 3; b) Nonlinear.

17a)



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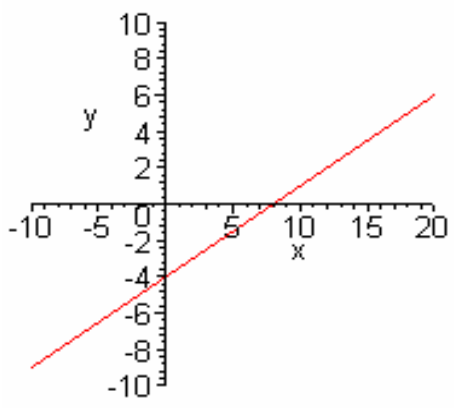
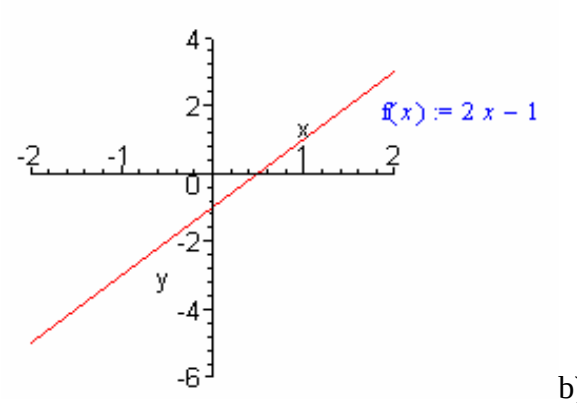


18. $f(x) := 0.21x + 0.20$ a) $5.45; b) 23 minutes.

19a) C (m) = 15 +0.20 m; m = 0.20; b = 15.

d) d A = $\frac{45}{7}t + 25$; m = 45/7; b = 25.

20a)



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