

# Ricketts' Key Practice Test 2

Northwest-Shoals Community College  
Math, Science, and Technology Division  
MTH 100

Practice Problems Chapter 3 Ricketts

1. Complete the table for the equation  $x - y = 8$

Answers will vary!

x	y
0	-8
1	-7
2	-6
-1	-9
-2	-10

2. Find all of the intercepts for the equation  $5x + 7y = 28$

x-intercepts:  $(\frac{28}{5}, 0)$   
y-intercepts:  $(0, 4)$

3. Indicate the quadrant in which the point  $(-8, 27)$  would lie

Quadrant II

4. Find the slope of a line that goes through the points  $(-3, 9)$  and  $(0, 15)$ .

$$m = \frac{\Delta y}{\Delta x} = \frac{6}{3} = 2$$

5. Find the slope of the line given by the equation:  $\frac{5y}{5} = \frac{10x}{5} - \frac{25}{5}$

$$y = 2x - 5$$

$m = 2$

6. Find the slope of a line going through  $(-4, 6)$  and perpendicular to the line given by the equation  $y = -3x + 8$ .

$$m = \frac{1}{3}$$

$$y - 6 = \frac{1}{3}(x + 4)$$

$$y = \frac{1}{3}x + \frac{22}{3}$$

zero

7. Compare and contrast a line having zero slope with a line having an undefined slope. (This should be well explained.) Horizontal lines have zero slope b/c their rise = 0, so the slope is zero. Vertical lines have zero run, so slope would have denominator of zero & be undefined.

U ↑ Def'd

8. If a walkway increases 2 ft vertically for every 10 ft on the horizontal, write a fraction to express the slope of the walkway.

$$m = \frac{2}{10} = \frac{1}{5}$$

9. Write an equation for a line with a slope of 7 and containing the point  $(0, -3)$ .

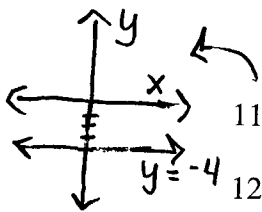
$$y = 7x - 3$$

10. Write an equation to give the line going through  $(3, -2)$  that is parallel to the line given by  $y = -6x + 4$ .

$$m = -6$$

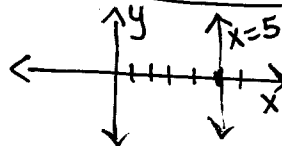
$$y + 2 = -6(x - 3)$$

$$y = -6x + 16$$

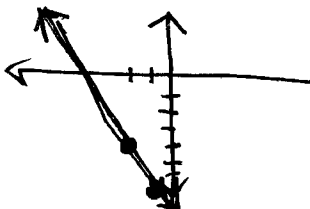


11. Graph the line given by  $y = -4$

12. Graph the line given by  $x = 5$



13. Graph a line with the slope of -3 and going through the point  $(-2, -4)$ .



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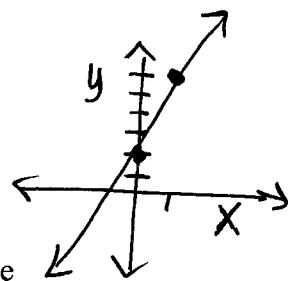
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$$y = 4x + 2$$

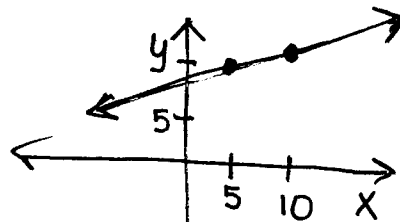
14. Graph the line given by  $7y - 14 = 28x$

$$7y = 28x + 14$$

15. Graph the line that is perpendicular to  $y = -5x$  which goes through the point  $(5, 10)$ .  $m = 1/5$



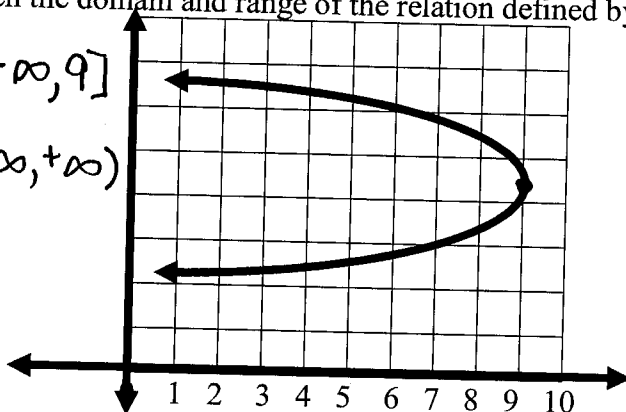
16. Graph the solution set to this inequality:  $3x - 2y \leq 12$ .



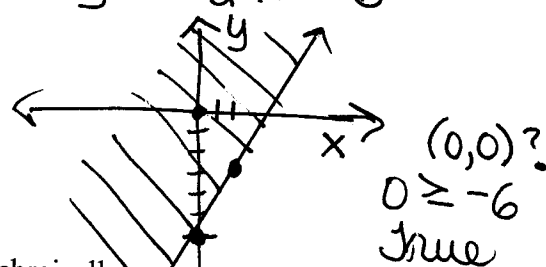
17. Given the domain and range of the relation defined by the graph

$$D = (-\infty, 9]$$

$$R = (-\infty, +\infty)$$



$$(16) \quad y \geq \frac{3}{2}x - 6$$



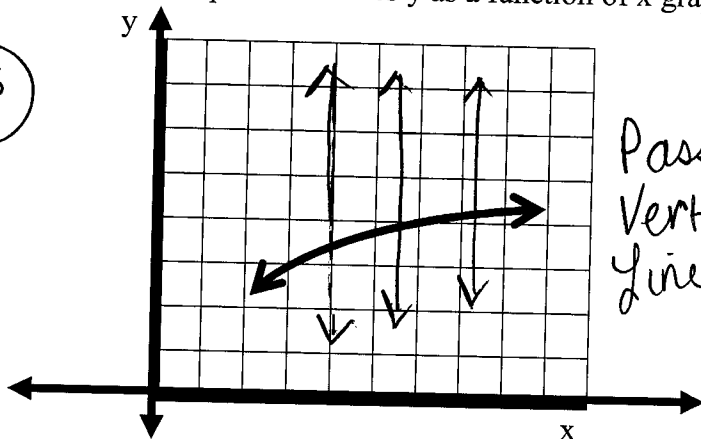
18. Determine if the equation defines  $y$  as a function of  $x$  algebraically.

$$y^2 = x$$

**No** b/c  $(-1)^2 = 1 +$

19. Determine if the equation defines  $y$  as a function of  $x$  graphically:

**Yes**



Passes  
Vertical  
Line Test

$(1)^2 = 1$   
x's repeat

x	y
1	1
1	-1

20. Determine if the ordered pair  $(5, 2)$  is a solution of the following system:

$$\begin{cases} 2x - y = 8 \\ 3x + 2y = 20 \end{cases}$$

$$3(5) + 2(2) \neq 20$$

**No**

$$3(5) + 2(2) \neq 20$$

21. Solve this system by the substitution method:

$$\begin{cases} -x - 4y = -14 \\ 2x - y = 1 \end{cases}$$

$$2x - y = 1 \rightarrow y = 2x - 1$$

$$-x - 4(2x - 1) = -14$$

$$-x - 8x + 4 = -14$$

$$-9x = -18$$

$$x = 2$$

$$\rightarrow 2(2) - y = 1$$

$$4 - 1 = y$$

$$3 = y$$

**(2, 3)** is the solution

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22. Solve this system by the elimination method:  $\begin{cases} 5x - 5y = 3 \\ x - y = 12 \end{cases}$

$$\begin{array}{r} 5x - 5y = 3 \\ -5x + 5y = -60 \\ \hline 0 = -57 \end{array}$$

False  $\Rightarrow \emptyset$   
No Sol

For each application problem below show variable labels, system of equations, and solutions:

below

- 23. Jack Nicklaus has the most victories ever won by a golfer in the Masters' Tournament. He exceeds the number of Arnold Palmer's victories by 2 wins. If they have won a total of 10 tournaments, how many times has each won?
- 24. Sharon and Rae are riding bicycles on the same trail and in the same direction. Sharon crosses a bridge at 12:18 pm. Rae crosses the same bridge at 12:33 pm. If Sharon is going 8 mph and Rae is going 10 mph, when will Rae catch up with Sharon?
- 25. Tickets for Madonna's *Drowned World Tour* at the MGM Grand cost \$350 (lower) and \$250 (upper.) Ulie won big at the slot machines and purchased 10 tickets for his friends, costing a total of \$3300. How many of each type of ticket did he purchase?

The exam will be somewhat similar to this "Practice Test".

You may get extra practice using the Chapter Reviews for the sections covered in class. The website [www.LialAlgebra.com](http://www.LialAlgebra.com) will give you tutorials and reviews, also.

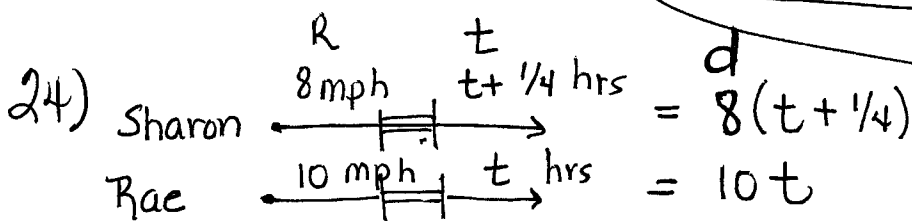
23) # Nicklaus victories =  $x$   
# Palmer " =  $y$

$$\begin{cases} x = y + 2 \\ x + y = 10 \end{cases}$$

Subst:

$$\begin{aligned} y + 2 + y &= 10 \\ 2y &= 8 \end{aligned}$$

$y = 4$  Palmer wins  
 $x = 6$  Nicklaus wins



Find time when distances are equal

$$8(t + \frac{1}{4}) = 10t$$

$$8t + 2 = 10t$$

$$2 = 2t$$

$$1 = t$$

Rae will catch up at 1:33 pm  
(1 hr later)

1:33 pm

25) # lower level =  $x$   
# upper level =  $y$

$$350x + 250y = 3300$$

$$x + y = 10 \Rightarrow x = 10 - y$$

$$350(10 - y) + 250y = 3300$$

$y = 2$  upper level  
 $x = 8$  lower level tickets