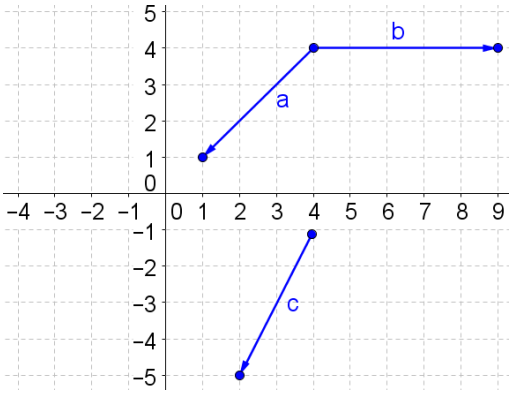
Unit11 Review Name:_____

11.2

Use the figure for problems 1-8:



1) State the components of vector a
2) State the components of vector b
3) State the components of vector c
4) State the components of $a + b$
5) State the components of $b - c$
6) State the components of $3(a - b)$
7) State the components of $10b - 7c$
8) State the components of $3(7a + 4b)$

Sketch and label the following vectors with a tail of $(0,0)$ on the coordinate axis.

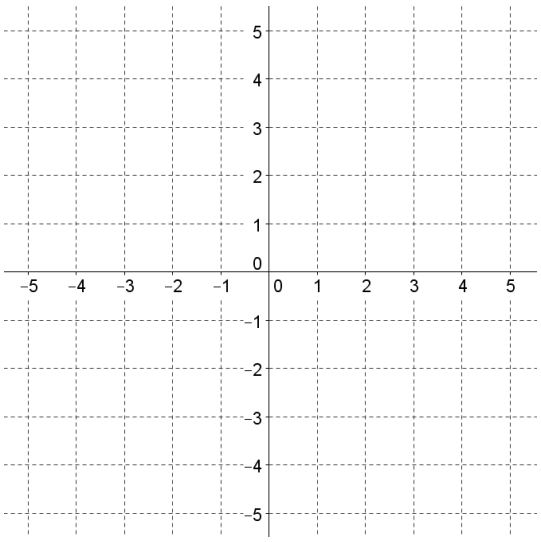
9) $d = \langle 3, -3 \rangle$

10) $e = \langle 5, 2 \rangle$

Sketch and label the following vectors on the coordinate axis.

11) $p = \langle 3, 3 \rangle$; p has a tail of $(-5, -3)$

12) $q = \langle -2, 4 \rangle$; q has a tail of $(-3, 4)$

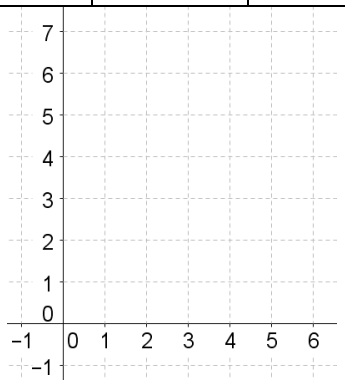


11.3

Finish the parametric table and sketch the parametric curve.

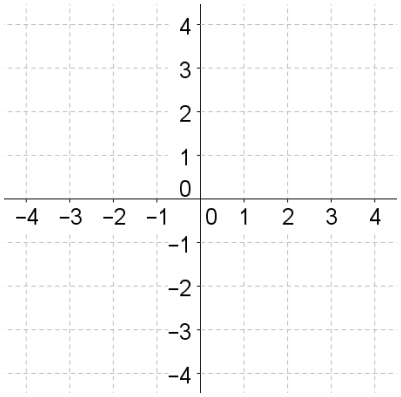
13) $a =< t^2, 4 - t >$

t	$x(t)$	$y(t)$	$a = (x, y)$
-2			
-1			
0			
1			
2			



14) $c =< t^2 + 2t - 2, t - 1 >$

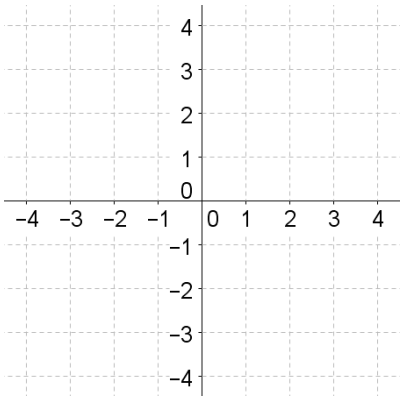
t	$x(t)$	$y(t)$	$c = (x, y)$
-2			
-1			
0			
1			
2			



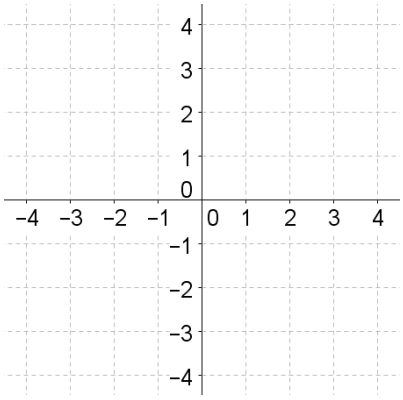
11.4

Eliminate the parameter and write an equation for the curve in the form of $y = f(x)$. Then sketch the function.

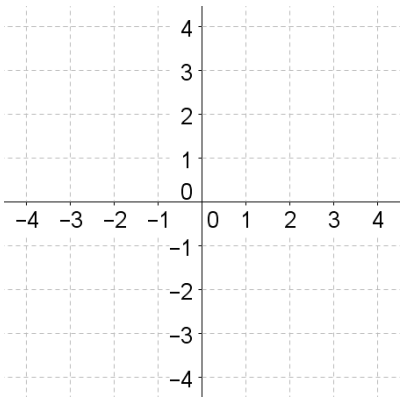
15) $d = \langle \sqrt{t}, \sqrt[3]{t} \rangle$



16) $e = \langle \cos(t) + 3, \sin(t) - 2 \rangle$



17) $f = \langle \frac{6}{t}, t - 2 \rangle$



18) Paxton hits a baseball $3\ ft$ above the ground with an initial speed of $150\ ft/sec$ at an angle of $18°$ with the horizontal. Will the ball clear a $20\ ft$ wall that is $400\ ft$ away?

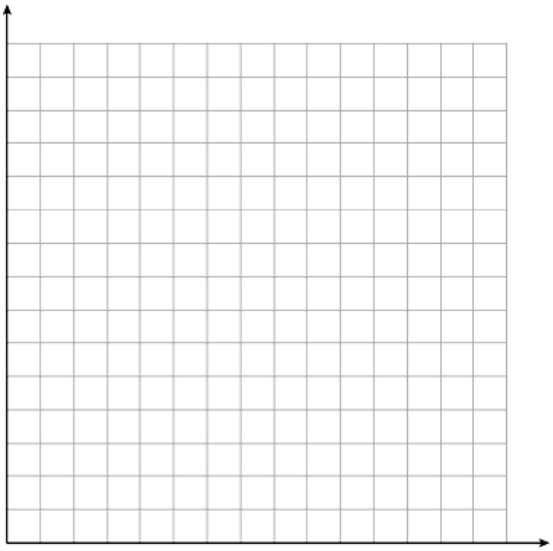
$$g = \langle (150\cos 18°)t, -16t^2 + (150\sin 18°)t + 3 \rangle$$

a) Find the height of the baseball during the first 3 seconds.

t	$x(t)$	$y(t)$	$g = (x, y)$
0			
.25			
.5			
.75			
1			
1.25			
1.5			
1.75			
2			
2.25			
2.5			
2.75			
3			

b) Will Paxton's ball clear the fence?

c) Sketch the graph.



11.1

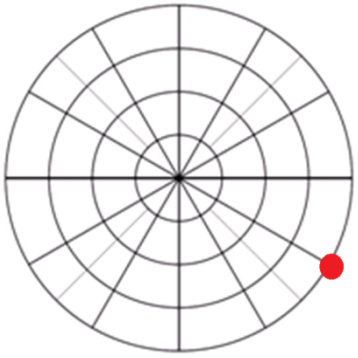
19) Given the polar coordinate $\left(5, \frac{4\pi}{3}\right)$ convert to a rectangular coordinate (x, y):

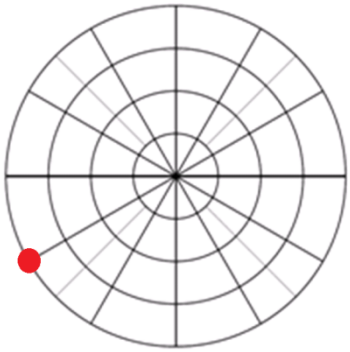
A $\left(-\frac{5}{2}, -\frac{5\sqrt{3}}{2}\right)$ B $\left(\frac{5}{2}, \frac{5\sqrt{3}}{2}\right)$ C $\left(-\frac{5\sqrt{3}}{2}, -\frac{5}{2}\right)$ D $\left(\frac{5\sqrt{3}}{2}, \frac{5}{2}\right)$

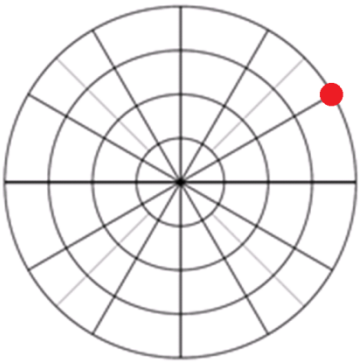
20) Given the rectangular coordinate $(-3, 3)$ convert to a polar coordinate (r, θ):

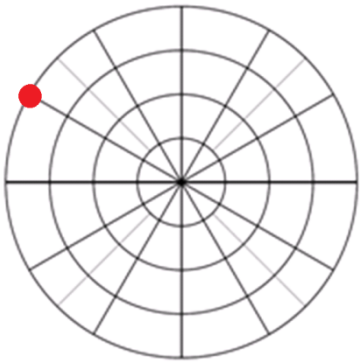
A $\left(-3\sqrt{2}, \frac{\pi}{4}\right)$ B $\left(-3\sqrt{2}, \frac{5\pi}{4}\right)$ C $\left(3\sqrt{2}, \frac{3\pi}{4}\right)$ D $\left(3\sqrt{2}, \frac{7\pi}{4}\right)$

21) Which is the graph of $(r, \theta) = \left(4, -\frac{5\pi}{6}\right)$?

A 

B 

C 

D 

22) Which of the following polar points is equivalent to the polar point $\left(-2, \frac{\pi}{3}\right)$?

A $\left(-2, -\frac{\pi}{3}\right)$ B $\left(2, -\frac{4\pi}{3}\right)$ C $\left(-2, -\frac{2\pi}{3}\right)$ D $\left(2, -\frac{2\pi}{3}\right)$

23) Write the rectangular equation $x^2 + y^2 = 100$ in polar form:

A $r = 10\cos\theta$ B $r = \pm 10$ C $r = 10\sin\theta$ D $r = 10\tan\theta$