
WIR 2

Sections 1.2, 1.3, 2.2

1 Section 1.2

- Find $\vec{a} \cdot \vec{b}$
 - if $\|\vec{a}\| = 3$, $\|\vec{b}\| = 2$, and the angle between \vec{a} and \vec{b} is $\frac{4\pi}{3}$.
 - if $\vec{a} = \langle 2, -3 \rangle$ and $\vec{b} = 4\mathbf{i} + 5\mathbf{j}$.
- Find the value(s) of x such that the vectors $\vec{u} = \langle 2x, -x \rangle$ and $\vec{v} = \langle 3, x \rangle$ are orthogonal.
- Find the value(s) of x such that $\vec{s} = \langle 1, x \rangle$ and $\vec{t} = \langle 3, 4 \rangle$ are parallel.
- Find the work done by a force of 30lb acting in the direction N30°W in moving an object 20ft West.
- A 10lb block slide down a straight ramp for the initial point $(0, 15)$ to the final position $(7, 0)$.
Find the work done by the gravity force on the block.
- Find the distance from the point $P(1, 3)$ to the line $y = 2x - 1$.

2 Section 1.3

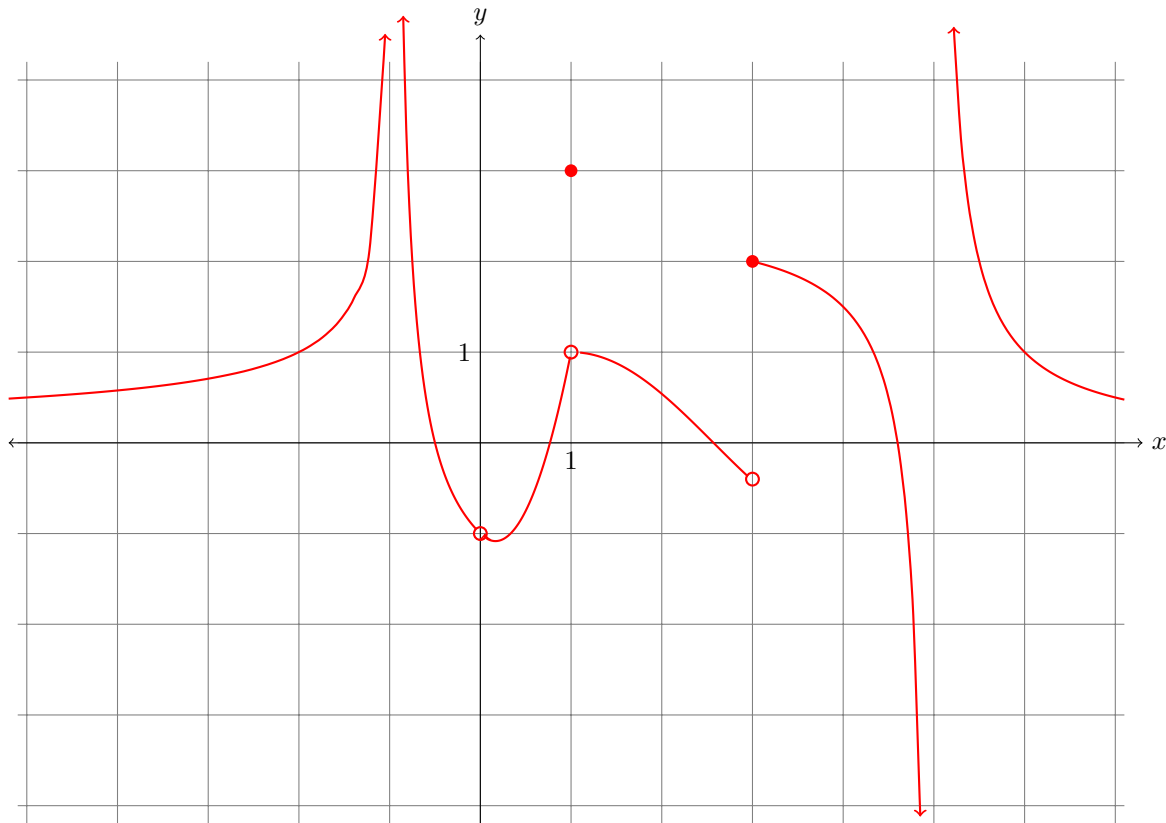
- For each parametric equation,
 - sketch the curve.
 - Eliminate the parameter to find a Cartesian equation.
 - $x(t) = t^2 - 4$ $y(t) = 1 - t$.
 - $x(t) = 2t - 7$, $y(t) = t - 5$.
 - $x(t) = 2 \cos t$ $y(t) = \sin t$.
- Find a vector equation, a parametric equation, and a Cartesian equation for
 - the line passing through the points $A(1, -2)$ and $B(3, 4)$.
 - the line passing through the point $C(1, 3)$, and parallel to the vector $\vec{v} = \langle 2, 5 \rangle$.
 - the line passing through the point $D(-1, 2)$, and orthogonal to $\vec{w} = \langle 3, 5 \rangle$.
- Are the lines
$$L_1 : \vec{r}_1(t) = \langle 4 + t, 1 + 2t \rangle \quad L_2 : \vec{r}_2(t) = \langle 5 - 4t, -2 + 2t \rangle$$
orthogonal, parallel or neither.
In case L_1 and L_2 are not parallel, find the coordinates of the intersection point of L_1 and L_2 .
- A marble is moving in the xy -plane. Its position at time t is given by

$$x(t) = 2t + 5 \quad y(t) = 8t - t^2.$$

- (a) Find the position of the marble at time $t = 3$.
- (b) The line $y = 15$ is traced on the plane. At what time(s) does the marble cross the line?
- (c) Does the marble pass through the point $(9, 12)$?
- (d) Does the marble pass through the point $(7, 12)$?

3 Section 2.2

1. Given the function f defined by its graph,



- (a) What is the domain of f ?
- (b) Complete the following equalities:

$\lim_{x \rightarrow -1^-} f(x) =$	$\lim_{x \rightarrow -1^+} f(x) =$	$\lim_{x \rightarrow -1} f(x) =$	$f(-1) =$
$\lim_{x \rightarrow 0^-} f(x) =$	$\lim_{x \rightarrow 0^+} f(x) =$	$\lim_{x \rightarrow 0} f(x) =$	$f(0) =$
$\lim_{x \rightarrow 1^-} f(x) =$	$\lim_{x \rightarrow 1^+} f(x) =$	$\lim_{x \rightarrow 1} f(x) =$	$f(1) =$
$\lim_{x \rightarrow 3^-} f(x) =$	$\lim_{x \rightarrow 3^+} f(x) =$	$\lim_{x \rightarrow 3} f(x) =$	$f(3) =$
$\lim_{x \rightarrow 5^-} f(x) =$	$\lim_{x \rightarrow 5^+} f(x) =$	$\lim_{x \rightarrow 5} f(x) =$	$f(5) =$

2. Find the asymptotes and holes of the function $f(x) = \frac{x - 1}{x^2 - 3x + 2}$.