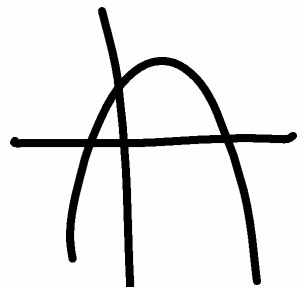


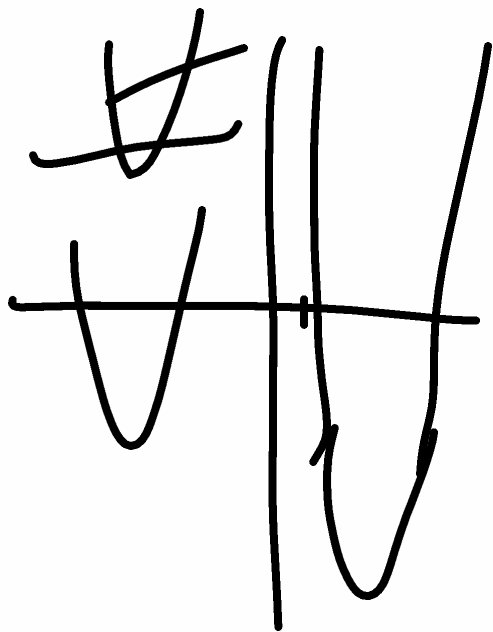
ASSIGNMENT 6 Solutions

Tue 18 Dec 2018

pg 49 10) For $y = a(x-h)^2 + k$, state what a & k have to be such that



a) the parabola intersects the x-axis at 2 $\neq$ points



	Case 1	Case 2
a	> 0	< 0
k	< 0	> 0

b) parabola intersects x-axis at 1 point

a	≥ 1	> 1	$\neq 0$	$\neq 0$
k	1	0	0	1

Works
but ans is
not complete

Correct solution

(drawing to help reasoning)

Graph

() parabola does not intersect x-axis

English
(statement)

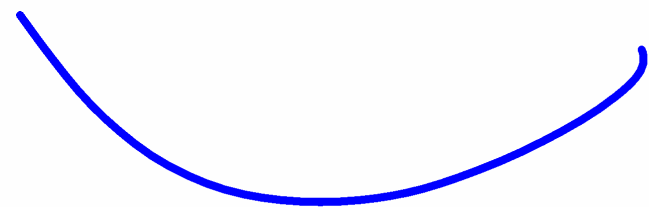
Formula
(Answer)

a	> 0	> 0	< 0	$a > 0$	$a > 0$
k	> 0	> 1	≤ -1	$k > 0$	$k < 0$

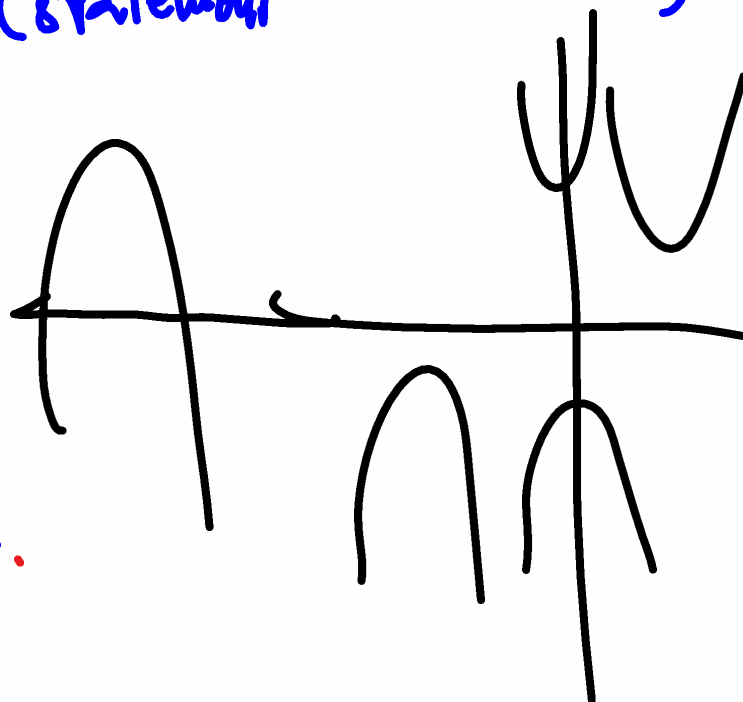
Above upwards
 $k > 0 \Rightarrow a > 0$

$k \neq 0$

below downwards
 $k < 0 \Rightarrow a < 0$



Correct Answer



1) Gravity acceleration: $g_E = 9.8 \text{ m/s}^2$ (on Earth)

$$\frac{a}{-4.9}$$

$g_M = 3.7 \text{ m/s}^2$ (on Mars)

$$\frac{-1.85}{-}$$

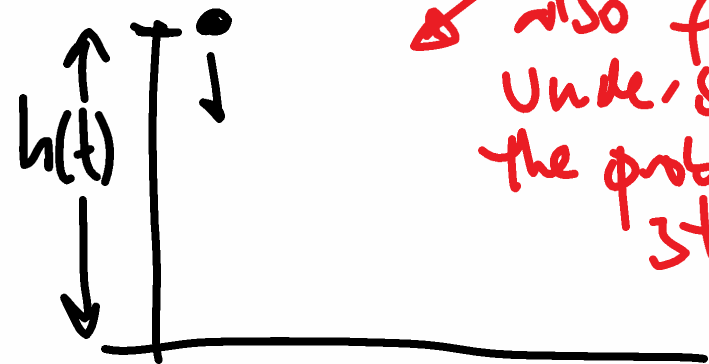
$g_S = 10.5 \text{ m/s}^2$ (on Saturn)

$$\frac{-5.25}{-}$$

$g_N = 11.2 \text{ m/s}^2$ (on Neptune)

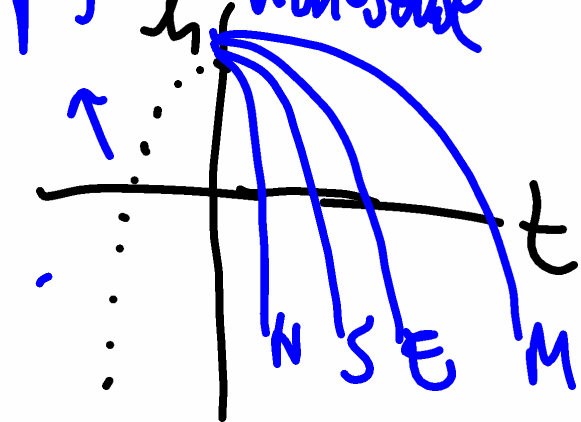
$$\frac{-5.6}{-}$$

Plot a graph
also for
understanding
the problem
statement



$$h(t) = -\frac{1}{2}gt^2 + k \rightarrow \text{height from which we drop ball}$$

physically non-sense



$$a) y = a(x-h)^2 + k$$

$$\text{Earth: } a = -\frac{1}{2}g_E = -\frac{9.8}{2} = -4.9$$

ANSWER