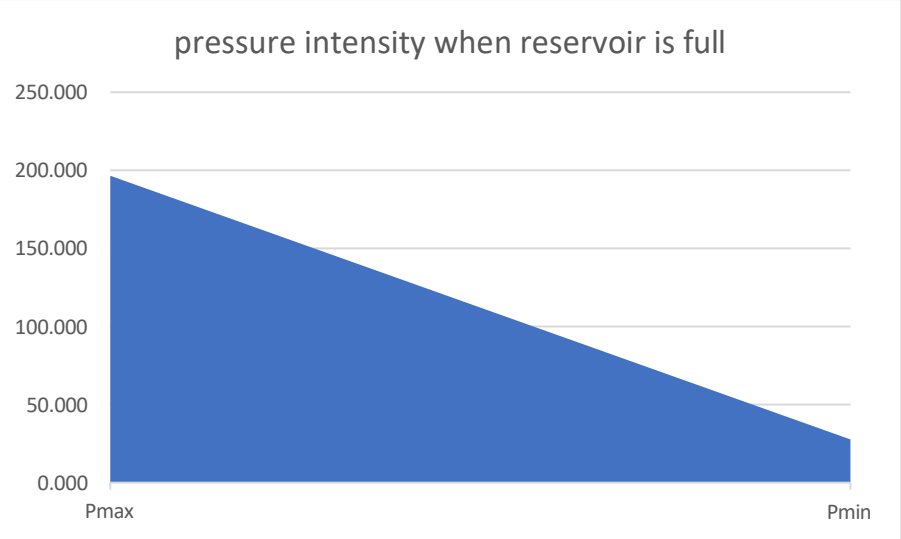
A masonry retaining wall, trapezoidal in section. with one face vertical is 1 m wide at top and 3 m at the base and 8 m high The material retained on the vertical face exerts a lateral pressure varying from zero at top to 25 kNIm² at the base. If the unit weight of masonry is 21 kN/m, calculate the maximum and minimum stress intensities

Given details	value	unit
a	1	m
b	3	m
H	8	m
roh	21	KN/m^3
w	10	KN/m^3
lateral pressure	25	KN/m^2

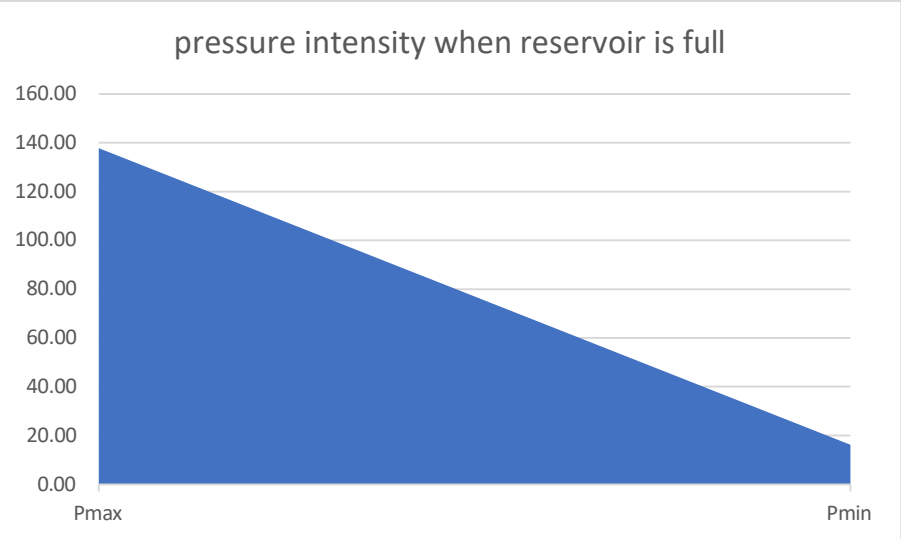
Step 1					
weight of the dam per unit weight			W	336	kN
Step 2					
Toral pressure per unit length of the dam			p	100	kN
Step 3					
			X-bar	1.083	m
Step 4			Z	1.877	m
Step 5	When reservoir is full				
Eccentricity of the resultant			e	0.377	m
Maximum intensity of the pressure at base			Pmax	196.444	KN/m^2
Minimum intensity of pressure at base			Pmin	27.556	KN/m^2



A masonry dam 1.2 m wide at top and 3.2 m wide at bottom and 5 m high,. It has vertical water face exposed to water .If the water is likely to rise to the top of the dam , calculate the maximum and minimum pressure at the base when the dam is full and when the dam is empty. Take density of masonry = 22.4 kn/m^3. Density of water = 10kn/m^3. Draw the stress intensity diagram for both cases.

a	1.2	m
b	3.2	m
H	5	m
roh	22.4	KN/m^3
w	10	KN/m^3

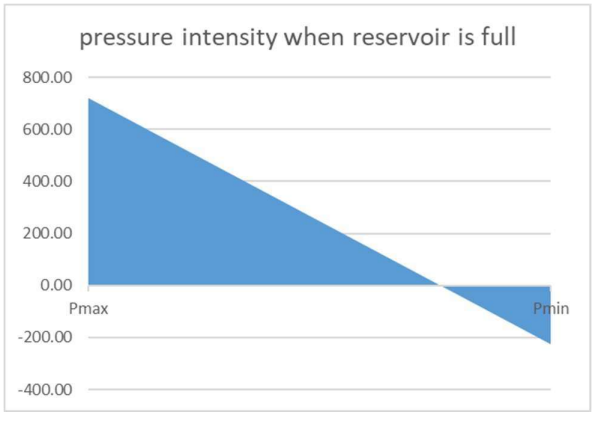
Step 1				
weight of the dam per unit weight		W	246.4	kN
Step 2				
Toral pressure per unit length of the dam		p	125	kN
Step 3				
		X-bar	1.18	m
Step 4		Z	2.02	m
Step 5	When reservoir is full			
Eccentricity of the resultant		e	0.42	m
Maximum intensity of the pressure at base		Pmax	137.82	KN/m^2
Minimum intensity of pressure at base		Pmin	16.18	KN/m^2
Step 6	When reservoir is empty			
Eccentricity of the resultant		e	0.42	m
Maximum intensity of the pressure at base		Pmax	138.25	KN/m^2
Minimum intensity of pressure at base		Pmin	15.75	KN/m^2

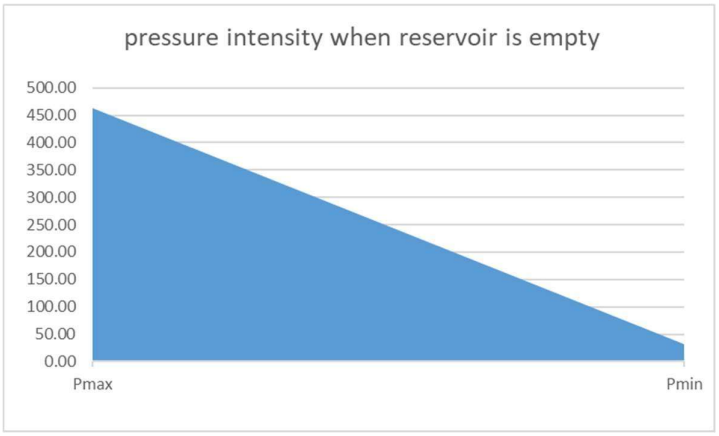


A masonry dam 2 m wide at top and 7 m wide at bottom and 16 m high. Water imposed up to a height of 15 m, the water face being vertical. Determine the normal stress intensities at the base, both when the dam is empty and full. Take density of masonry = 22.4 kn/m^3. Density of water = 10kn/m^3. Draw the stress intensity diagram for both cases.

Given details	value	unit
a	2	m
b	7	m
H	16	m
h	15	m
roh	24	KN/m^3
w	10	KN/m^3

Step 1					
weight of the dam per unit weight			W	1728.00	kN
Step 2					
Toral pressure per unit length of the dam			p		
				1125.00	kN
Step 3					
			X-bar	2.48	m
Step 4					
			Z	5.74	m
Step 5					
Eccentricity of the resultant			e	2.24	m
Maximum intensity of the pressure at base			Pmax	720.12	KN/m^2
Minimum intensity of pressure at base			Pmin	-226.41	KN/m^2
Step 6					
Eccentricity of the resultant			e	1.02	m
Maximum intensity of the pressure at base			Pmax	462.37	KN/m^2
Minimum intensity of pressure at base			Pmin	31.35	KN/m^2

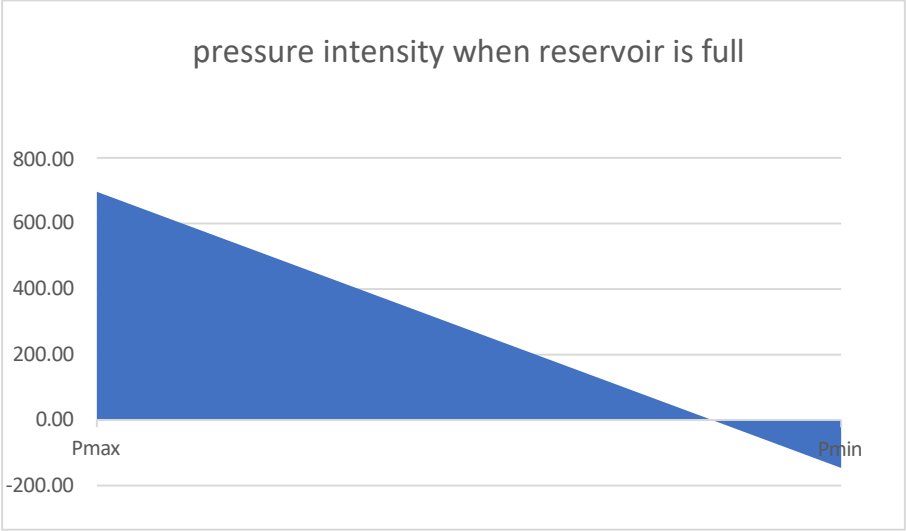




A masonry dam of trapezoidal section having water on vertical face is 16m high. The base of the dam is 8m wide and top 3m wide, Find 1) resultant thrust on the base per metre length of the dam.2) point, where resultant thrust cuts the base. 3)Thee intensity of maximum and minimum stress across the base. Take weight of masonry 25kN /m^3 and that of water 10 kN/m^3.Assume water may rise upto the top level of the dam

Given details	value	unit
a	3	m
b	8	m
H	16	m
roh	25	KN/m^3
w	10	KN/m^3

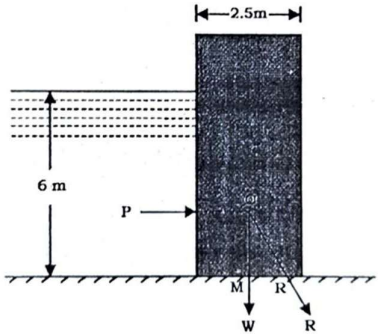
Step 1					
weight of the dam per unit weight			W	2200.00	kN
Step 2					
Toral pressure per unit length of the dam			p	1280.00	kN
resultant thrust on the dam			R	2545.27	kN
Step 3					
			X-bar	2.94	m
Step 4			Z	6.04	m
Step 5					
Eccentricity of the resultant			e	2.04	m
Maximum intensity of the pressure at base			Pmax	696.25	KN/m^2
Minimum intensity of pressure at base			Pmin	-146.25	KN/m^2

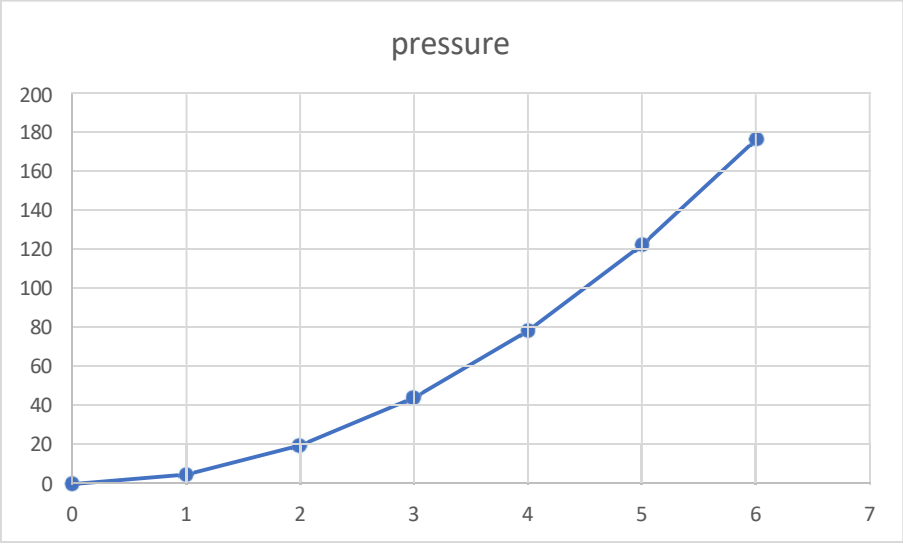


A retaining wall 6m high and 2.5m wide retains water up to its top. Find the total pressure per meter length of the wall and the point at which the resultant cuts the base. Also find the resultant thrust on the base of the wall per meter length. Assume weight of masonry as 23 KN/m

Given Details			
Weight of retaining walls	H	6	m
Width of retaining wall	b	2.5	m
Weight of retaining walls	W	23	KN/m3
Total pressure per meter length of the wall		176.4	KN
Points At which the resultant cuts the base	W	345	KN
	X	1.022609	m
Resultant thrust on the base of the wall per meter length	R	387.4816	m
weight of water	w	9.81	kN/m3
Total Pressure per meter length of the wall		176.4	KN
Points Resultant at which the resultant cuts the base (from the mid-point of the wall)		1.022609	m
Resultant thrust on the base f the wall per meter length		387.4816	m

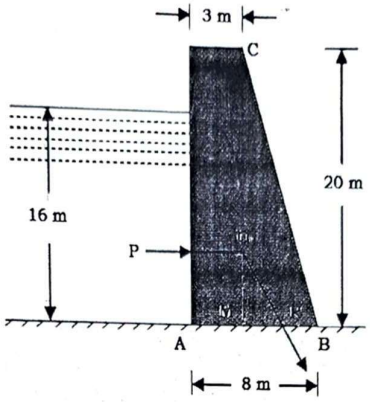
Height	pressure
6	176.58
5	122.625
4	78.48
3	44.145
2	19.62
1	4.905
0	0





Problem A concrete dam having water on vertical face is 16m high. The base of the dam is 8m wide and top 3m wide. Find the resultant thrust on the base per meter length of the dam and the point of where it intersects the base, where i contains water 16m deep. Take weight of the concrete as 23 KN/m3

Given Details		
Height of Dam	20	m
Base width	8	m
Top width	3	m
Depth of water	16	m
Weight of concrete	24	KN/m3



1	Resultant Thrust on the base per meter length of the dam	P	**1255.68**	**KN**
2	Weight per unit length of dam	W	**2640**	**KN**
3	Resultant thrust on the base of the wall per meter length	R	**2923.411**	**KN**
4	Point of resultant thrust intersect the base	AM	**323.3333**	**M**
			3.233333	
			5.48	