

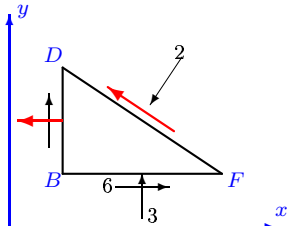
# Плоское напряженное состояние

Пластика находится в плоском напряженном состоянии. Даны напряжения, приложенные к ее сторонам (МПа). Дан ряд  $p$  распределения дискретной случайной величины коэффициента Пуассона  $\nu$ . Модуль упругости  $E = 1000$  МПа. Найти математическое ожидание  $M$  и среднеквадратическое отклонение  $\sigma$  осевых деформаций.

## Задача L-25.1.

1

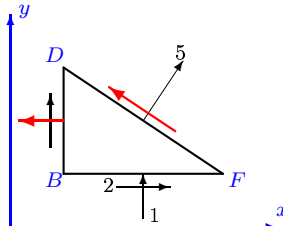
$p = [0.05, 0.35, 0.35, 0.25]$ ,  
 $\nu = [0.3, 0.28, 0.26, 0.24]$ ,  $BF = 4$  см,  $BD = 3$  см.



## Задача L-25.2.

1

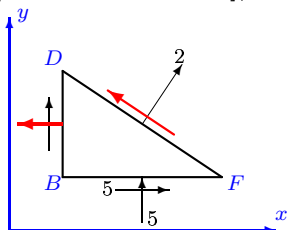
$p = [0.05, 0.35, 0.4, 0.2]$ ,  
 $\nu = [0.4, 0.38, 0.36, 0.35]$ ,  $BF = 6$  см,  $BD = 8$  см.



## Задача L-25.3.

1

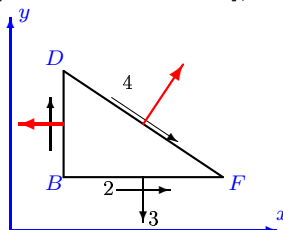
$p = [0.1, 0.3, 0.35, 0.25]$ ,  
 $\nu = [0.4, 0.39, 0.38, 0.37]$ ,  $BF = 4$  см,  $BD = 2$  см.



## Задача L-25.4.

1

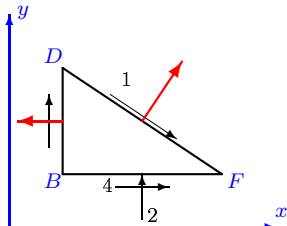
$p = [0.05, 0.35, 0.4, 0.2]$ ,  
 $\nu = [0.4, 0.38, 0.36, 0.34]$ ,  $BF = 4$  см,  $BD = 3$  см.



## Задача L-25.5.

1

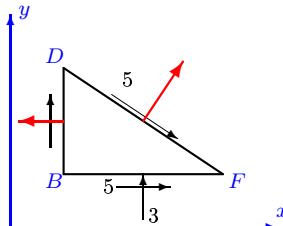
$p = [0.05, 0.35, 0.35, 0.25]$ ,  
 $\nu = [0.3, 0.28, 0.26, 0.24]$ ,  $BF = 4$  см,  $BD = 3$  см.



## Задача L-25.6.

1

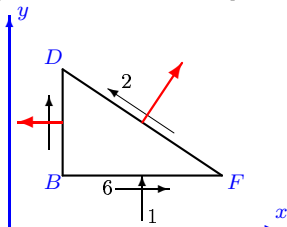
$p = [0.1, 0.3, 0.4, 0.2]$ ,  
 $\nu = [0.5, 0.49, 0.47, 0.45]$ ,  $BF = 4$  см,  $BD = 3$  см.



## Задача L-25.7.

1

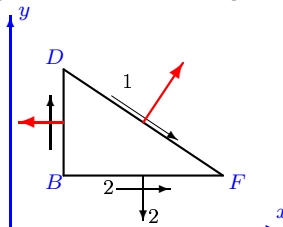
$p = [0.1, 0.3, 0.4, 0.2]$ ,  
 $\nu = [0.5, 0.49, 0.47, 0.46]$ ,  $BF = 3$  см,  $BD = 4$  см.



## Задача L-25.8.

1

$p = [0.05, 0.35, 0.4, 0.2]$ ,  
 $\nu = [0.4, 0.38, 0.37, 0.36]$ ,  $BF = 8$  см,  $BD = 6$  см.

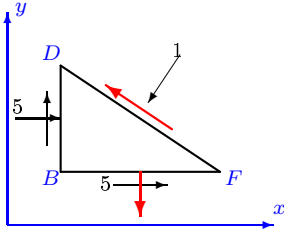


**Задача L-25.9.**

1

$$p = [0.1, 0.3, 0.35, 0.25],$$

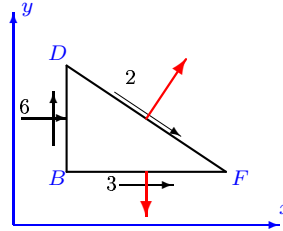
$$\nu = [0.4, 0.39, 0.38, 0.36], \quad BF = 4 \text{ см}, \quad BD = 3 \text{ см}.$$

**Задача L-25.10.**

1

$$p = [0.1, 0.3, 0.35, 0.25],$$

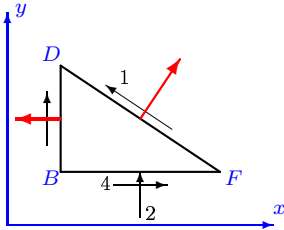
$$\nu = [0.4, 0.39, 0.38, 0.36], \quad BF = 4 \text{ см}, \quad BD = 3 \text{ см}.$$

**Задача L-25.11.**

1

$$p = [0.05, 0.35, 0.4, 0.2],$$

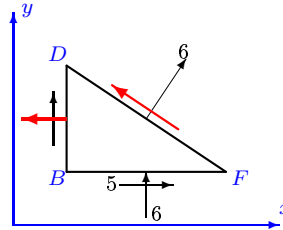
$$\nu = [0.4, 0.38, 0.37, 0.35], \quad BF = 4 \text{ см}, \quad BD = 3 \text{ см}.$$

**Задача L-25.12.**

1

$$p = [0.1, 0.3, 0.35, 0.25],$$

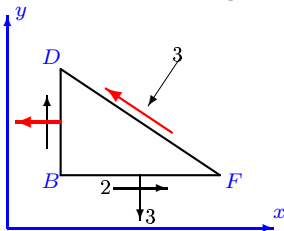
$$\nu = [0.4, 0.39, 0.37, 0.36], \quad BF = 4 \text{ см}, \quad BD = 4 \text{ см}.$$

**Задача L-25.13.**

1

$$p = [0.05, 0.35, 0.35, 0.25],$$

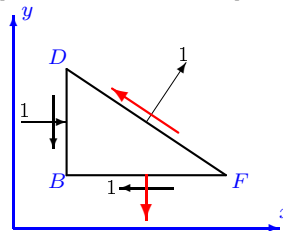
$$\nu = [0.3, 0.28, 0.26, 0.24], \quad BF = 4 \text{ см}, \quad BD = 3 \text{ см}.$$

**Задача L-25.14.**

1

$$p = [0.05, 0.35, 0.4, 0.2],$$

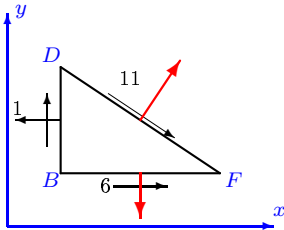
$$\nu = [0.4, 0.38, 0.37, 0.35], \quad BF = 4 \text{ см}, \quad BD = 3 \text{ см}.$$

**Задача L-25.15.**

1

$$p = [0.1, 0.3, 0.4, 0.2],$$

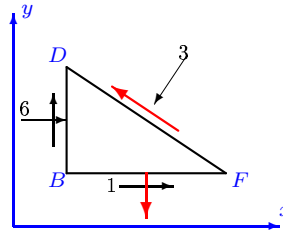
$$\nu = [0.5, 0.49, 0.48, 0.47], \quad BF = 4 \text{ см}, \quad BD = 3 \text{ см}.$$

**Задача L-25.16.**

1

$$p = [0.05, 0.35, 0.35, 0.25],$$

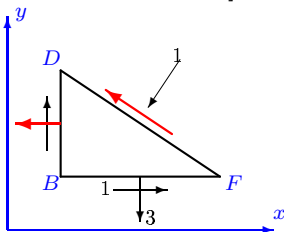
$$\nu = [0.3, 0.28, 0.26, 0.25], \quad BF = 2 \text{ см}, \quad BD = 4 \text{ см}.$$

**Задача L-25.17.**

1

$$p = [0.1, 0.3, 0.4, 0.2],$$

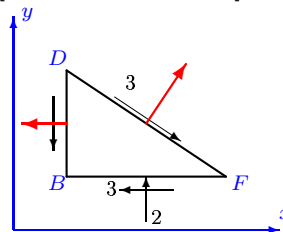
$$\nu = [0.5, 0.49, 0.47, 0.45], \quad BF = 4 \text{ см}, \quad BD = 3 \text{ см}.$$

**Задача L-25.18.**

1

$$p = [0.1, 0.3, 0.4, 0.2],$$

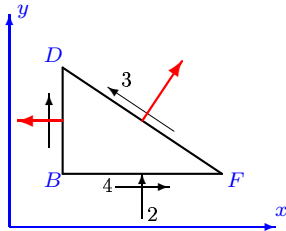
$$\nu = [0.5, 0.49, 0.47, 0.45], \quad BF = 4 \text{ см}, \quad BD = 3 \text{ см}.$$



**Задача L-25.19.**

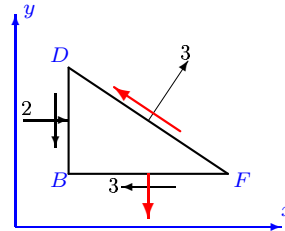
1

$p = [0.05, 0.35, 0.35, 0.25]$ ,  
 $\nu = [0.3, 0.28, 0.26, 0.24]$ ,  $BF = 4$  см,  $BD = 3$  см.

**Задача L-25.20.**

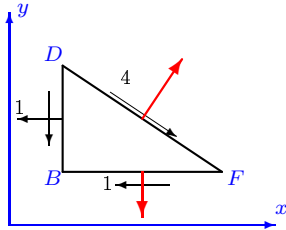
1

$p = [0.05, 0.35, 0.4, 0.2]$ ,  
 $\nu = [0.4, 0.38, 0.37, 0.35]$ ,  $BF = 4$  см,  $BD = 3$  см.

**Задача L-25.21.**

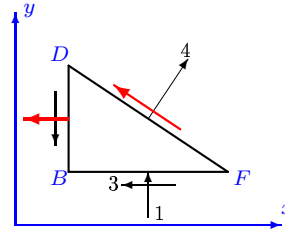
1

$p = [0.1, 0.3, 0.35, 0.25]$ ,  
 $\nu = [0.4, 0.39, 0.37, 0.36]$ ,  $BF = 4$  см,  $BD = 4$  см.

**Задача L-25.22.**

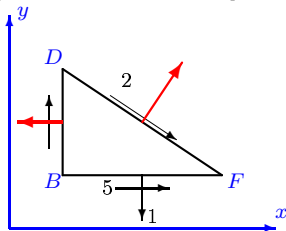
1

$p = [0.05, 0.35, 0.35, 0.25]$ ,  
 $\nu = [0.3, 0.28, 0.27, 0.26]$ ,  $BF = 3$  см,  $BD = 3$  см.

**Задача L-25.23.**

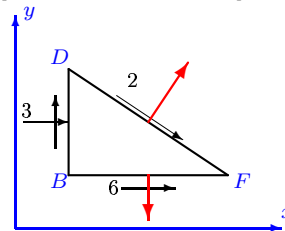
1

$p = [0.05, 0.35, 0.35, 0.25]$ ,  
 $\nu = [0.3, 0.28, 0.27, 0.25]$ ,  $BF = 4$  см,  $BD = 3$  см.

**Задача L-25.24.**

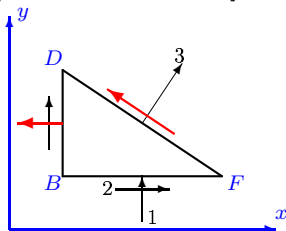
1

$p = [0.1, 0.3, 0.4, 0.2]$ ,  
 $\nu = [0.5, 0.49, 0.48, 0.46]$ ,  $BF = 4$  см,  $BD = 3$  см.

**Задача L-25.25.**

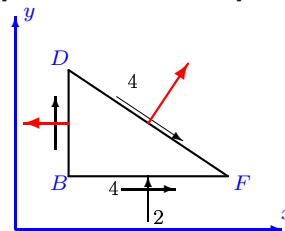
1

$p = [0.05, 0.35, 0.4, 0.2]$ ,  
 $\nu = [0.4, 0.38, 0.37, 0.35]$ ,  $BF = 4$  см,  $BD = 3$  см.

**Задача L-25.26.**

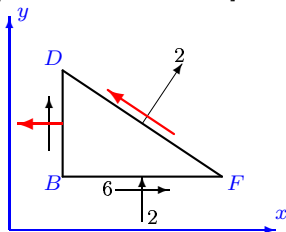
1

$p = [0.1, 0.3, 0.4, 0.2]$ ,  
 $\nu = [0.5, 0.49, 0.48, 0.47]$ ,  $BF = 4$  см,  $BD = 3$  см.

**Задача L-25.27.**

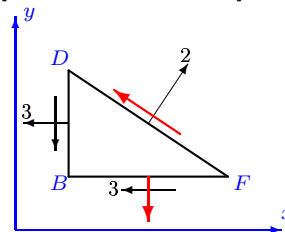
1

$p = [0.05, 0.35, 0.4, 0.2]$ ,  
 $\nu = [0.4, 0.38, 0.36, 0.35]$ ,  $BF = 6$  см,  $BD = 8$  см.

**Задача L-25.28.**

1

$p = [0.1, 0.3, 0.4, 0.2]$ ,  
 $\nu = [0.5, 0.49, 0.47, 0.46]$ ,  $BF = 3$  см,  $BD = 4$  см.

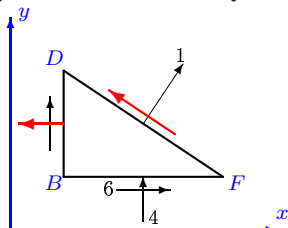


**Задача L-25.29.**

1

$$p = [0.05, 0.35, 0.4, 0.2],$$

$$\nu = [0.4, 0.38, 0.37, 0.36], \quad BF = 8 \text{ см}, \quad BD = 6 \text{ см}.$$



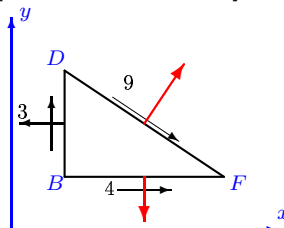
L-25

**Задача L-25.30.**

1

$$p = [0.1, 0.3, 0.4, 0.2],$$

$$\nu = [0.5, 0.49, 0.48, 0.47], \quad BF = 4 \text{ см}, \quad BD = 3 \text{ см}.$$



**Ответы.**  
**Плоское напряженное состояние**

22-Jan-16

	$\sigma_x$	$\sigma_y$	$\sigma$	$\tau_{xy}$	$\tau$	$\sigma_{max}$	$\sigma_{min}$	$M(\varepsilon_x)$	$M(\varepsilon_y)$	$\sigma(\varepsilon_x)$	$\sigma(\varepsilon_y)$
	МПа							$\cdot 10^3$	$\cdot 10^5$		
1	15.778	-3.000	-2.000	-6.000	-7.333	17.531	-4.753	18.786	-9.382	8.288	30.567
2	11.375	-1.000	5.000	-2.000	-6.500	11.690	-1.315	12.173	-5.606	1.818	16.156
3	50.000	-5.000	2.000	-5.000	-19.000	50.451	-5.451	52.536	-24.748	5.135	47.528
4	12.500	3.000	4.500	-2.000	-4.000	12.904	2.596	11.956	-2.114	4.305	21.399
5	2.417	-2.000	-4.250	-4.000	-1.000	4.777	-4.361	5.929	-5.622	7.603	8.330
6	10.333	-3.000	-3.000	-5.000	-5.000	12.000	-4.667	14.217	-10.367	7.597	19.535
7	-8.667	-1.000	-11.667	-6.000	2.000	2.287	-11.953	7.988	-13.044	16.082	3.076
8	5.250	2.000	1.250	-2.000	-1.000	6.202	1.048	5.811	-1.265	1.000	5.916
9	-5.000	8.750	-1.000	-5.000	8.000	10.376	-6.626	12.894	-10.569	8.639	13.529
10	-6.000	-11.917	-12.667	-3.000	-2.000	-4.745	-13.172	0.260	-11.368	17.174	6.187
11	-1.750	-2.000	-5.750	-4.000	1.000	2.127	-5.877	4.307	-6.666	7.411	2.682
12	28.000	-6.000	6.000	-5.000	-17.000	28.720	-6.720	31.250	-17.533	9.330	39.873
13	-8.333	3.000	-3.000	-2.000	6.000	3.343	-8.676	5.633	-9.558	15.127	5.828
14	-1.000	0.625	1.000	1.000	0.500	1.101	-1.476	1.649	-1.884	1.861	1.388
15	1.000	-25.417	-21.667	-6.000	-11.000	2.299	-26.716	15.203	-27.826	24.044	2.069
16	-6.000	13.000	-3.000	-1.000	7.000	13.052	-6.052	14.665	-9.531	8.618	18.585
17	-5.444	3.000	-1.000	-1.000	4.333	3.117	-5.561	5.758	-7.042	9.053	5.074
18	2.500	-2.000	2.500	3.000	-3.000	4.000	-3.500	5.662	-5.400	5.698	6.512
19	-5.917	-2.000	-7.250	-4.000	3.000	0.495	-8.412	2.716	-8.543	14.667	0.864
20	-2.000	1.313	3.000	3.000	0.750	3.083	-3.771	4.482	-4.914	4.755	3.888
21	1.000	-7.000	-2.000	1.000	-4.000	1.123	-7.123	3.805	-7.546	9.889	1.559
22	3.000	-1.000	4.000	3.000	-2.000	4.606	-2.606	5.316	-3.861	2.589	4.577
23	8.083	1.000	-1.250	-5.000	-2.000	10.669	-1.586	11.097	-4.466	2.127	14.314
24	-3.000	-10.667	-13.667	-6.000	-2.000	0.287	-13.953	6.998	-14.091	17.032	0.350
25	15.444	-1.000	3.000	-2.000	-7.333	15.684	-1.240	16.144	-7.059	1.563	19.777
26	8.667	-2.000	-2.000	-4.000	-4.000	10.000	-3.333	11.610	-8.163	3.000	9.000
27	13.250	-2.000	2.000	-6.000	-9.000	15.328	-4.078	16.824	-9.703	5.635	21.183
28	3.000	-7.778	2.000	3.000	-4.333	3.779	-8.557	7.860	-10.359	11.512	5.084
29	25.889	-4.000	1.000	-6.000	-12.667	27.048	-5.159	28.973	-15.249	4.922	25.803
30	3.000	-18.083	-14.333	-4.000	-9.000	3.733	-18.817	12.822	-20.620	16.935	3.360

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