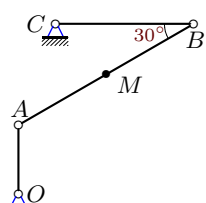
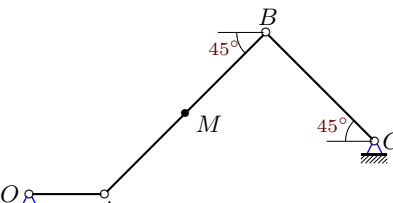
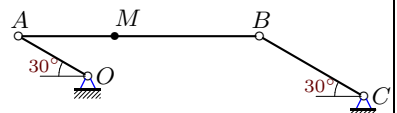
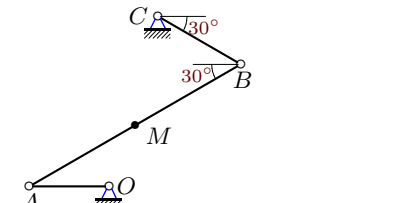
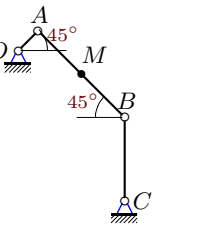
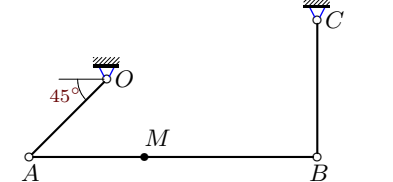


Движение точки по звену механизма

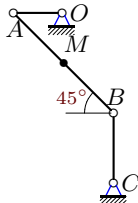
Плоский шарнирно-стержневой механизм приводится в движение кривошипом OA , который вращается против часовой стрелки с постоянной угловой скоростью ω . Вдоль стержня A движется точка M по закону $AM = \sigma(t)$ или $BM = \sigma(t)$. Положение механизма при $t = t_1$ указано на рисунке. Все размеры даны в см. Стержни, положение которых не задано углом, горизонтальны или вертикальны. Найти абсолютную скорость и абсолютное ускорение точки M в этот момент.

Кирсанов М.Н. Решебник. Теоретическая механика с. 209.

<p>Вариант 1 К12.</p>  <p>$\omega_{OA} = 1.7 \frac{1}{c}$, $AM = 22t(3 - t)$; $t = 1$ с, $OA = 30$, $AB = 88$, $BC = 60$</p>	<p>Вариант 2 К12.</p>  <p>$\omega_{OA} = 1.3 \frac{1}{c}$, $AM = 15t(2 + \cos(\pi t/3))$; $t = 6$ с, $OA = 178$, $AB = 540$, $BC = 364$</p>
<p>Вариант 3 К12.</p>  <p>$\omega_{OA} = 1.4 \frac{1}{c}$, $AM = 8t + 8 \sin^2(\pi t/4)$; $t = 2$ с, $OA = 20$, $AB = 60$, $BC = 30$</p>	<p>Вариант 4 К12.</p>  <p>$\omega_{OA} = 0.6 \frac{1}{c}$, $AM = 6(\sin(\pi t/6) + t^2)$; $t = 5$ с, $OA = 100$, $AB = 306$, $BC = 120$</p>
<p>Вариант 5 К12.</p>  <p>$\omega_{OA} = 3.4 \frac{1}{c}$, $BM = 20t + 8 \sin^2(\pi t/6)$; $t = 1$ с, $OA = 10$, $AB = 44$, $BC = 30$</p>	<p>Вариант 6 К12.</p>  <p>$\omega_{OA} = 1.9 \frac{1}{c}$, $AM = 7t(2 + \cos(\pi t/3))$; $t = 4$ с, $OA = 40$, $AB = 105$, $BC = 50$</p>

Вариант 7

K12.



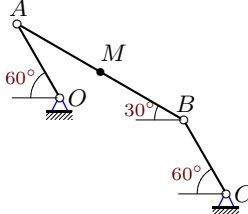
$$\omega_{OA} = 1.4 \frac{1}{c},$$

$$BM = 6t(16 - t); t = 3 \text{ c},$$

$$OA=160, AB=468, BC=230$$

Вариант 8

K12.



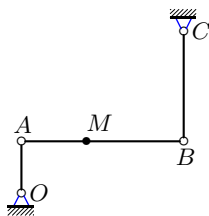
$$\omega_{OA} = 1.8 \frac{1}{c},$$

$$BM = 15(\sin(\pi t/6) + t^2); t = 1 \text{ c},$$

$$OA=20, AB=45, BC=20$$

Вариант 9

K12.



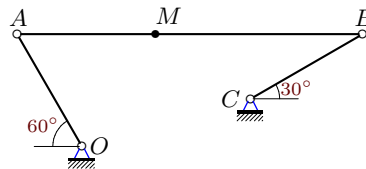
$$\omega_{OA} = 0.8 \frac{1}{c},$$

$$AM = 10(\sin(\pi t/6) + t^2); t = 3 \text{ c},$$

$$OA=80, AB=250, BC=170$$

Вариант 10

K12.



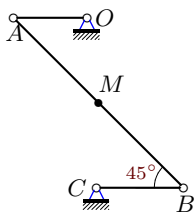
$$\omega_{OA} = 1.4 \frac{1}{c},$$

$$AM = 12t + 8 \sin^2(\pi t/4); t = 2 \text{ c},$$

$$OA=30, AB=80, BC=30$$

Вариант 11

K12.



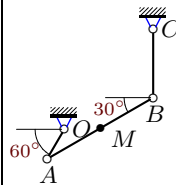
$$\omega_{OA} = 2.8 \frac{1}{c},$$

$$BM = 16t + 8 \sin^2(\pi t/6); t = 1 \text{ c},$$

$$OA=11, AB=36, BC=13$$

Вариант 12

K12.



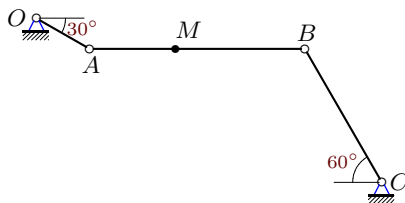
$$\omega_{OA} = 1.6 \frac{1}{c},$$

$$AM = 6t + 8 \sin^2(\pi t/3); t = 3 \text{ c},$$

$$OA=10, AB=36, BC=20$$

Вариант 13

K12.



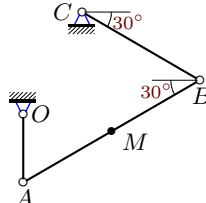
$$\omega_{OA} = 1.5 \frac{1}{c},$$

$$AM = 10t + 8 \sin^2(\pi t/4); t = 2 \text{ c},$$

$$OA=20, AB=70, BC=50$$

Вариант 14

K12.



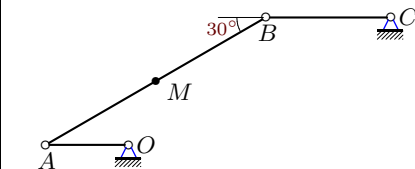
$$\omega_{OA} = 1.3 \frac{1}{c},$$

$$AM = 10t(5 - t); t = 2 \text{ c},$$

$$OA=40, AB=120, BC=80$$

Вариант 15

K12.



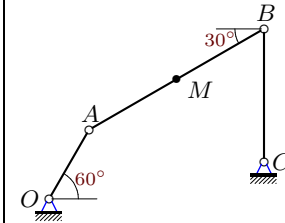
$$\omega_{OA} = 0.6 \frac{1}{c},$$

$$AM = 6(\sin(\pi t/6) + t^2); t = 5 \text{ c},$$

$$OA=100, AB=306, BC=150$$

Вариант 16

K12.



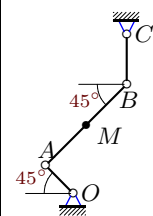
$$\omega_{OA} = 1.6 \frac{1}{c},$$

$$AM = 19t(3 - t); t = 1 \text{ c},$$

$$OA=30, AB=76, BC=50$$

Вариант 17

K12.



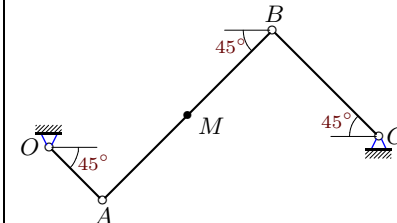
$$\omega_{OA} = 1.7 \frac{1}{c},$$

$$AM = 32t(3 - t); t = 1 \text{ c},$$

$$OA=44, AB=128, BC=56$$

Вариант 18

K12.



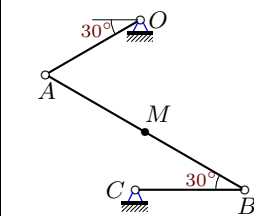
$$\omega_{OA} = 1.5 \frac{1}{c},$$

$$AM = 16t + 8 \sin^2(\pi t/3); t = 3 \text{ c},$$

$$OA=30, AB=96, BC=60$$

Вариант 19

K12.



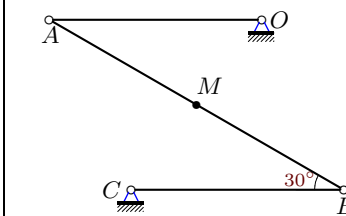
$$\omega_{OA} = 1.7 \frac{1}{c},$$

$$BM = 7(\sin(\pi t/6) + t^2); t = 1 \text{ c},$$

$$OA=10, AB=21, BC=10$$

Вариант 20

K12.



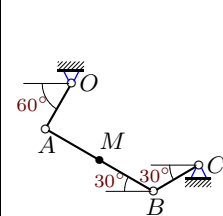
$$\omega_{OA} = 2 \frac{1}{c},$$

$$BM = 6t + 8 \sin^2(\pi t/6); t = 1 \text{ c},$$

$$OA=10, AB=16, BC=10$$

Вариант 21

K12.



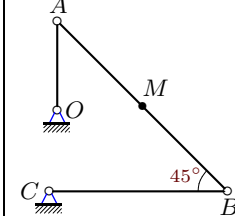
$$\omega_{OA} = 2.4 \frac{1}{c},$$

$$BM = 10t + 8 \sin^2(\pi t/6); t = 1 \text{ c},$$

$$OA=10, AB=24, BC=10$$

Вариант 22

K12.



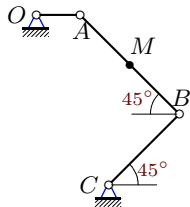
$$\omega_{OA} = 1.1 \frac{1}{c},$$

$$BM = 9t(2 + \cos(\pi t/3)); t = 2 \text{ c},$$

$$OA=20, AB=54, BC=40$$

Вариант 23

K12.



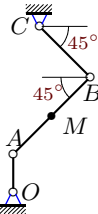
$$\omega_{OA} = 1.2 \frac{1}{c},$$

$$BM = 15t(2 + \cos(\pi t/3)); t = 2 \text{ c},$$

$$OA=28, AB=90, BC=64$$

Вариант 24

K12.



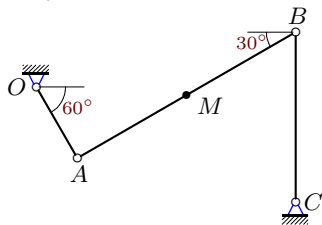
$$\omega_{OA} = 1.2 \frac{1}{c},$$

$$AM = 8t(2 + \cos(\pi t/3)); t = 6 \text{ c},$$

$$OA=100, AB=288, BC=190$$

Вариант 25

K12.



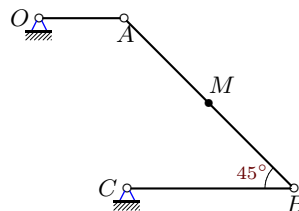
$$\omega_{OA} = 0.6 \frac{1}{c},$$

$$AM = 9(\sin(\pi t/6) + t^2); t = 5 \text{ c},$$

$$OA=150, AB=459, BC=310$$

Вариант 26

K12.



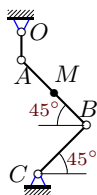
$$\omega_{OA} = 1.5 \frac{1}{c},$$

$$BM = 11t(8 - t); t = 2 \text{ c},$$

$$OA=93, AB=264, BC=183$$

Вариант 27

K12.



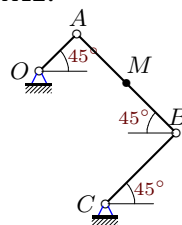
$$\omega_{OA} = 2.7 \frac{1}{c},$$

$$BM = 13(\sin(\pi t/6) + t^2); t = 1 \text{ c},$$

$$OA=12, AB=39, BC=29$$

Вариант 28

K12.



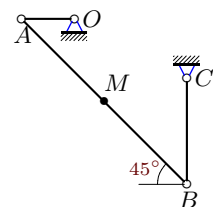
$$\omega_{OA} = 1.1 \frac{1}{c},$$

$$BM = 15t(2 + \cos(\pi t/3)); t = 2 \text{ c},$$

$$OA=34, AB=90, BC=64$$

Вариант 29

K12.



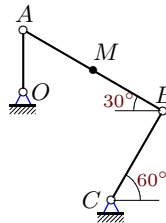
$$\omega_{OA} = 3.4 \frac{1}{c},$$

$$BM = 20t + 8 \sin^2(\pi t/6); t = 1 \text{ c},$$

$$OA=10, AB=44, BC=20$$

Вариант 30

K12.



$$\omega_{OA} = 1.1 \frac{1}{c},$$

$$BM = 13t(2 + \cos(\pi t/3)); t = 2 \text{ c},$$

$$OA=30, AB=78, BC=50$$

Ответы

	ω_e	ε_e	v_r^T	v_e	v	W_r^T	W_e	W_C	W
1	-1.16	0.63	22.00	51.00	33.79	-44.00	112.91	51.00	176.46
2	-0.30	-0.53	45.00	182.94	224.09	-98.70	247.48	27.27	338.85
3	0.00	0.44	8.00	28.00	24.98	-9.87	35.16	0.00	25.76
4	0.11	0.15	57.28	45.83	44.09	11.18	29.58	12.97	44.07
5	-0.77	-0.74	-23.63	38.01	60.08	-2.19	132.64	36.52	96.69
6	0.51	-0.42	35.89	62.67	95.26	28.05	124.17	36.74	169.90
7	0.68	-0.91	-60.00	158.39	98.39	12.00	114.97	81.23	145.22
8	0.00	0.00	-36.80	36.00	63.05	-27.94	64.80	0.00	42.94
9	0.00	0.30	60.00	64.00	4.00	17.26	21.08	0.00	27.25
10	1.05	-2.50	12.00	38.49	27.44	-9.87	131.07	25.20	106.90
11	0.00	-6.25	-19.63	30.80	21.88	-2.19	79.88	0.00	78.22
12	0.26	-0.54	6.00	12.22	16.77	17.55	21.22	3.08	39.03
13	-0.25	-0.78	10.00	24.25	31.43	-9.87	40.69	4.95	50.73
14	0.43	-0.11	10.00	45.03	55.03	-20.00	56.71	8.67	60.76
15	0.00	0.08	57.28	60.00	58.69	11.18	31.75	0.00	42.78
16	-0.36	0.84	19.00	36.66	28.16	-38.00	71.86	13.86	111.43
17	0.58	3.54	32.00	83.63	56.84	-64.00	101.94	37.40	161.66
18	0.00	-1.05	16.00	45.00	61.00	17.55	16.87	0.00	24.34
19	-0.81	-9.51	-17.17	22.49	17.18	-13.04	75.16	27.81	47.29
20	0.00	-10.00	-9.63	20.00	17.32	-2.19	69.28	0.00	68.21
21	-0.58	1.49	-13.63	24.98	12.47	-2.19	75.56	15.74	91.40
22	0.58	0.02	2.82	15.56	12.73	6.45	18.59	3.25	19.85
23	-0.26	0.22	4.71	26.56	22.45	10.76	36.74	2.49	29.73
24	-0.29	0.49	24.00	94.87	74.18	-52.64	118.71	14.14	173.21
25	-0.11	-0.19	85.92	93.67	177.83	16.77	10.68	19.45	16.60
26	0.00	0.55	-44.00	139.50	173.43	22.00	165.97	0.00	146.70
27	-0.59	-2.05	-31.89	25.61	14.56	-24.22	71.99	37.47	110.16
28	-0.00	0.21	4.71	37.40	32.69	10.76	31.50	0.00	33.28
29	1.09	0.66	-23.63	24.04	0.41	-2.19	111.17	51.64	69.54
30	0.21	0.19	4.08	29.75	25.85	9.32	28.98	1.73	33.96