Hoja 2

1. Determina la dosis a una profundidad de 10 cm para un campo de 4x20 cm de cobalto 60 a partir del cuadrado equivalente (tabla 10.4). Compara el resultado con el PDD que da la tabla de campos rectangulares y con el obtenido con la regla de Day.
2. Se trata un paciente en una unidad de cobalto con tres campos que se intersectan en el centro del tumor. El punto T se encuentra a 80 cm de la fuente y la tasa de dosis en ese punto en aire es 0,85 cGy/min. Las profundidades de T en el tejido para los tres campos son 8, 12 y 15 cm respectivamente. Determina la tasa de dosis en T y la tasa de dosis y el tamaño de campo en la profundidad del máximo de dosis para cada campo.

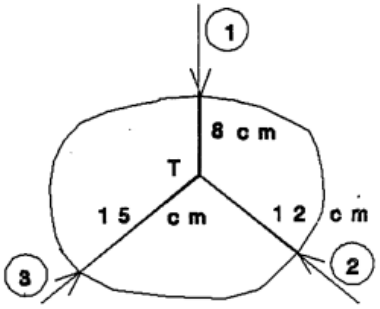

TABLE 10-4
Side Lengths of Square Fields Equivalent to Rectangular Fields

Long Axis (cm)	Short Axis (cm)														
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
2	2.0														
4	2.7	4.0													
6	3.1	4.8	6.0												
8	3.4	5.4	6.9	8.0											
10	3.6	5.8	7.5	8.9	10.0										
12	3.7	6.1	8.0	9.6	10.9	12.0									
14	3.8	6.3	8.4	10.1	11.6	12.9	14.0								
16	3.9	6.5	8.6	10.5	12.2	13.7	14.9	16.0							
18	4.0	6.6	8.9	10.8	12.7	14.3	15.7	16.9	18.0						
20	4.0	6.7	9.0	11.1	13.0	14.7	16.3	17.7	18.9	20.0					
22	4.0	6.8	9.1	11.3	13.3	15.1	16.8	18.3	19.7	20.9	22.0				
24	4.1	6.8	9.2	11.5	13.5	15.4	17.2	18.8	20.3	21.7	22.9	24.0			
26	4.1	6.9	9.3	11.6	13.7	15.7	17.5	19.2	20.9	22.4	23.7	24.9	26.0		
28	4.1	6.9	9.4	11.7	13.8	15.9	17.8	19.6	21.3	22.9	24.4	25.7	27.0	28.0	
30	4.1	6.9	9.4	11.7	13.9	16.0	18.0	19.9	21.7	23.3	24.9	26.4	27.7	29.0	30.0

Percent Depth Dose for Rectangular Fields

(e) Cobalt-60 11 mm Pb SSD 80 cm

d (cm)	*0×0*	*4×4*	*4×6*	*4×8*	*4×10*	*4×15*	*4×20*	*6×6*	*6×8*	*6×10*	*6×15*
0.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	95.4	96.8	97.0	97.2	97.3	97.4	97.4	97.4	97.6	97.7	97.8
2	87.1	90.6	91.2	91.5	91.6	91.8	91.8	91.9	92.2	92.5	92.7
3	79.5	84.7	85.5	85.9	86.1	86.4	86.4	86.5	86.9	87.3	87.6
4	72.7	79.0	79.9	80.4	80.6	81.0	81.1	81.1	81.7	82.1	82.5
5	66.5	73.5	74.5	75.1	75.3	75.7	75.9	75.9	76.6	77.0	77.5
6	60.8	68.1	69.2	69.9	70.1	70.5	70.7	70.7	71.5	71.9	72.5
7	55.6	62.9	64.1	64.8	65.1	65.5	65.7	65.7	66.5	67.0	67.6
8	50.9	58.0	59.2	59.9	60.3	60.8	61.0	60.8	61.7	62.2	62.9
9	46.6	53.5	54.7	55.3	55.8	56.3	56.6	56.2	57.1	57.7	58.5
10	42.7	49.3	50.5	51.1	51.6	52.2	52.5	52.0	52.9	53.5	54.4
11	39.2	45.5	46.6	47.3	47.8	48.4	48.6	48.1	49.0	49.6	50.5
12	35.9	41.9	43.0	43.7	44.2	44.8	45.1	44.5	45.4	46.0	46.9
13	32.9	38.6	39.7	40.4	40.9	41.4	41.8	41.1	42.0	42.7	43.6
14	30.2	35.6	36.6	37.3	37.8	38.4	38.7	38.0	38.9	39.6	40.5
15	27.7	32.9	33.8	34.5	35.0	35.6	35.9	35.2	36.1	36.7	37.6
16	25.4	30.4	31.3	32.0	32.4	33.1	33.4	32.6	33.5	34.1	35.0
17	23.3	28.1	29.0	29.6	30.0	30.7	31.0	30.2	31.1	31.6	32.6
18	21.4	26.0	26.9	27.4	27.9	28.5	28.8	28.0	28.8	29.4	30.3
19	19.6	24.0	24.9	25.4	25.9	26.5	26.8	26.0	26.7	27.4	28.2
20	18.0	22.1	22.9	23.5	23.9	24.5	24.8	24.0	24.8	25.4	26.2

	6×20	*8×8*	*8×10*	*8×15*	*8×20*	*10×10*	*10×15*	*10×20*	*15×15*	*15×20*	*20×20*
0.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	97.8	97.8	98.0	98.1	98.1	98.2	98.3	98.3	98.4	98.4	98.4
2	92.8	92.7	93.0	93.2	93.3	93.3	93.6	93.6	93.9	93.9	94.0
3	87.7	87.6	87.9	88.3	88.5	88.3	88.8	88.9	89.3	89.4	89.6
4	82.7	82.5	82.9	83.4	83.6	83.4	84.0	84.2	84.7	84.9	85.2
5	77.7	77.4	77.9	78.5	78.8	78.5	79.2	79.5	80.1	80.4	80.8
6	72.7	72.4	73.0	73.7	74.0	73.6	74.4	74.7	75.4	75.8	76.4
7	67.9	67.5	68.1	68.9	69.2	68.8	69.8	70.1	70.8	71.4	72.1
8	63.3	62.7	63.4	64.3	64.7	64.1	65.2	65.7	66.5	67.2	68.0
9	58.9	58.2	58.9	59.9	60.4	59.7	60.9	61.4	62.3	63.1	64.0
10	54.8	54.0	54.8	55.8	56.3	55.6	56.9	57.4	58.4	59.2	60.2
11	51.0	50.1	50.9	52.0	52.5	51.7	53.1	53.7	54.7	55.6	56.6
12	47.4	46.5	47.3	48.4	49.0	48.1	49.5	50.2	51.2	52.1	53.2
13	44.1	43.2	44.0	45.1	45.7	44.8	46.2	46.9	47.9	48.8	50.0
14	41.0	40.1	40.9	42.0	42.6	41.8	43.1	43.9	44.9	45.8	47.0
15	38.1	37.2	38.0	39.2	39.8	38.9	40.3	41.0	42.0	43.0	44.2
16	35.5	34.5	35.3	36.5	37.1	36.2	37.6	38.3	39.3	40.3	41.5
17	33.1	32.1	32.8	34.0	34.6	33.7	35.1	35.8	36.8	37.8	39.0
18	30.8	29.8	30.5	31.7	32.3	31.4	32.8	33.5	34.5	35.5	36.7
19	28.7	27.7	28.4	29.6	30.2	29.2	30.7	31.4	32.3	33.4	34.6
20	26.8	25.7	26.4	27.6	28.2	27.2	28.6	29.4	30.3	31.4	32.6

Tissue-Air Ratios for Rectangular Fields

Cobalt-60

d (cm)	0×0	4×4	4×6	4×8	4×10	4×15	5×5	6×6	6×8	6×10	6×15	7×7	8×8	8×10
*0.5	1.000	1.015	1.018	1.020	1.022	1.025	1.018	1.022	1.025	1.027	1.031	1.025	1.029	1.032
1	.965	.996	1.001	1.005	1.008	1.012	1.003	1.009	1.014	1.018	1.023	1.015	1.021	1.025
2	.905	.956	.965	.970	.973	.978	.967	.976	.983	.988	.994	.985	.992	.997
3	.845	.915	.926	.932	.936	.942	.928	.940	.948	.954	.961	.950	.959	.966
4	.792	.872	.885	.893	.897	.903	.888	.902	.912	.918	.926	.914	.924	.931
5	.742	.829	.843	.852	.856	.863	.847	.862	.873	.880	.889	.875	.887	.895
6	.694	.786	.801	.810	.815	.823	.805	.821	.833	.840	.851	.835	.847	.856
7	.650	.743	.758	.767	.773	.781	.762	.778	.791	.799	.810	.793	.807	.819
8	.608	.700	.715	.725	.731	.740	.719	.736	.749	.757	.769	.751	.765	.775
9	.570	.659	.674	.684	.689	.700	.677	.695	.708	.716	.730	.710	.724	.734
10	.534	.620	.635	.644	.650	.661	.638	.655	.668	.677	.691	.671	.685	.695
11	.501	.581	.596	.606	.612	.623	.600	.616	.630	.639	.652	.632	.647	.658
12	.469	.546	.560	.570	.576	.587	.563	.580	.594	.603	.617	.596	.611	.622
13	.440	.513	.527	.537	.544	.555	.530	.547	.561	.570	.584	.563	.578	.589
14	.412	.482	.496	.505	.512	.523	.499	.515	.528	.538	.552	.531	.545	.557
15	.386	.454	.467	.476	.483	.494	.470	.485	.498	.507	.522	.501	.515	.526
16	.361	.427	.440	.449	.455	.466	.443	.458	.470	.479	.494	.472	.485	.496
17	.338	.402	.414	.423	.429	.440	.417	.431	.443	.452	.467	.445	.458	.469
18	.317	.378	.390	.398	.404	.415	.393	.406	.418	.426	.441	.420	.433	.443
19	.297	.355	.366	.375	.381	.391	.369	.383	.394	.403	.417	.396	.409	.420
20	.278	.333	.344	.353	.358	.369	.347	.361	.372	.380	.394	.374	.386	.396
22	.246	.293	.304	.312	.317	.327	.306	.318	.328	.336	.350	.330	.342	.352
24	.215	.258	.268	.275	.280	.290	.270	.281	.290	.298	.311	.292	.303	.312
26	.187	.228	.236	.243	.248	.257	.238	.249	.258	.264	.277	.259	.270	.278
28	.164	.200	.210	.215	.219	.228	.210	.221	.228	.234	.246	.230	.239	.246
30	.144	.178	.185	.190	.194	.202	.186	.195	.202	.208	.218	.203	.212	.219

d (cm)	8×15	8×20	10×10	10×15	10×20	12×12	15×15	15×20	20×20	20×30	25×25	30×30	35×35
*0.5	1.037	1.041	1.035	1.042	1.046	1.041	1.051	1.056	1.063	1.071	1.073	1.080	1.084
1	1.032	1.035	1.031	1.038	1.043	1.038	1.048	1.054	1.062	1.069	1.072	1.079	1.084
2	1.005	1.009	1.004	1.013	1.018	1.014	1.025	1.032	1.040	1.049	1.052	1.059	1.065
3	.975	.980	.974	.985	.990	.985	.999	1.006	1.016	1.026	1.029	1.038	1.044
4	.942	.947	.940	.952	.959	.953	.968	.977	.987	.999	1.002	1.014	1.021
5	.907	.913	.905	.918	.925	.919	.936	.946	.957	.971	.974	.988	.998
6	.869	.876	.867	.882	.890	.883	.902	.912	.925	.940	.944	.959	.970
7	.830	.837	.827	.844	.853	.845	.866	.878	.893	.909	.913	.929	.941
8	.790	.798	.787	.805	.815	.806	.830	.843	.859	.877	.881	.899	.912
9	.751	.760	.747	.767	.778	.768	.793	.808	.825	.845	.849	.869	.882
10	.713	.722	.709	.729	.741	.730	.756	.771	.790	.811	.816	.837	.852
11	.675	.685	.672	.692	.704	.692	.719	.736	.755	.777	.782	.803	.820
12	.640	.650	.636	.657	.670	.658	.685	.702	.722	.744	.750	.772	.790
13	.607	.618	.603	.625	.638	.626	.653	.670	.690	.713	.720	.743	.762
14	.575	.586	.571	.593	.606	.594	.622	.639	.660	.684	.691	.715	.734
15	.545	.556	.540	.563	.576	.563	.593	.610	.633	.656	.662	.687	.706
16	.515	.527	.510	.533	.547	.533	.564	.582	.605	.628	.634	.660	.679
17	.488	.499	.483	.506	.519	.506	.536	.554	.577	.601	.608	.633	.653
18	.462	.474	.457	.479	.493	.479	.509	.528	.551	.575	.582	.607	.627
19	.438	.449	.433	.455	.469	.455	.485	.503	.526	.550	.557	.583	.603
20	.415	.426	.410	.431	.445	.431	.461	.479	.502	.527	.534	.560	.580
22	.369	.380	.364	.385	.398	.384	.413	.431	.456	.481	.488	.515	.535
24	.329	.340	.324	.345	.358	.345	.373	.390	.412	.438	.446	.471	.492
26	.294	.304	.290	.309	.322	.308	.336	.352	.373	.398	.405	.431	.451
28	.263	.270	.257	.276	.288	.276	.302	.320	.339	.362	.368	.393	.413
30	.233	.242	.228	.245	.257	.244	.268	.286	.305	.328	.335	.358	.377