OTHER

Body Surface Area by Square Root

1. Order: cyclophosphamide 500 mg/m^2 in 500 mL of normal saline solution (NSS) over 90 minutes
   Patient height and weight: 5 ft 10 in, 142 lb
   Drug available: cyclophosphamide 100 mg dilute with 5 mL of sterile water; yields 20 mg/mL
   a. What is the patient's body surface area (BSA) (m^2)?
   b. What is the total dose?
   c. How many milliliters should you prepare?

   ANS:
   a. $\sqrt{\frac{70 \times 142}{3131}} = 1.78\ m^2$
   b. 500 mg/m^2 × 1.78 m^2 = 890 mg
   c. FE: 890 mg/100 mg × 5 mL = 44.5 mL

   OR

   BF: $\frac{D}{H} \times V = \frac{890\ mg}{100\ mg} \times 5\ mL = 44.5\ mL$

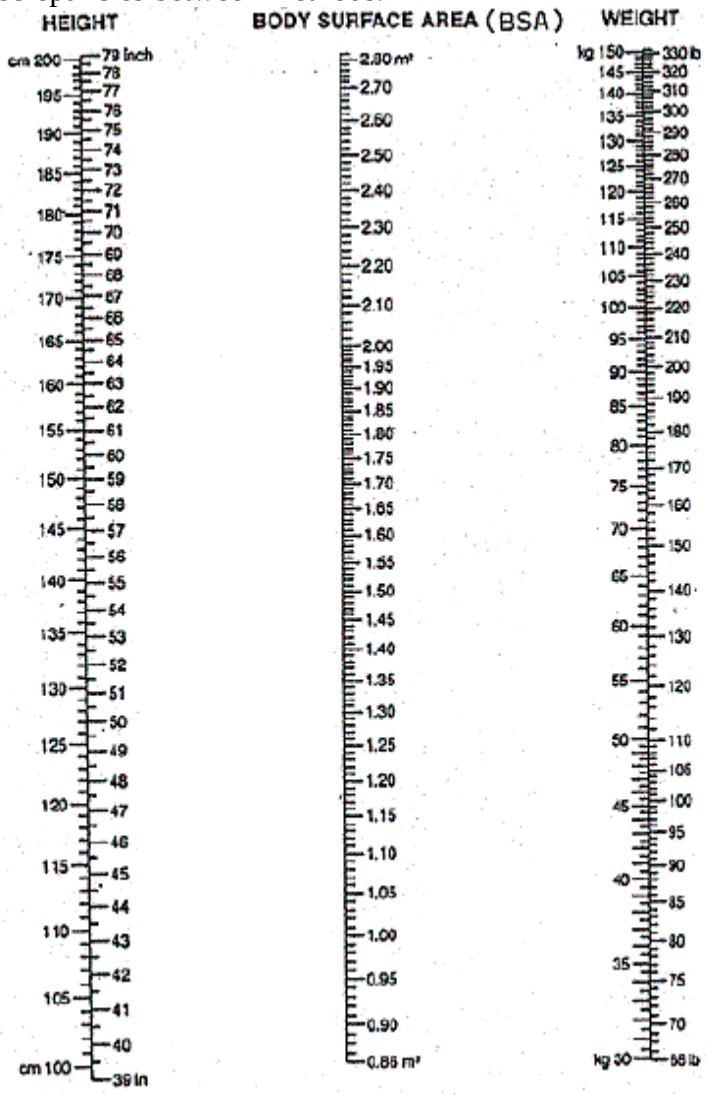
2. Order: cisplatin 50 mg/m^2 in 500 mL of NSS intravenously over 90 minutes
   Patient height and weight: 5 ft 6 in, 160 lb
   Drug available: cisplatin 100 mg/100 mL
   a. What is the patient's BSA (m^2)?
   b. What is the total dose?
   c. How many milliliters should you prepare?

   ANS:
   a. $\sqrt{\frac{66 \times 160}{3131}} = 1.84\ m^2$
   b. 50 mg × 1.84 m^2 = 92 mg
   c. FE: 92 mg/100 mg × 100 mL = 92 mL

   OR

   BF: $\frac{D}{H} \times V = \frac{92\ mg}{100\ mg} \times 100\ mL = 92\ mL$

3. For the following questions, use the square root method and/or nomogram. Note discrepancies between methods.



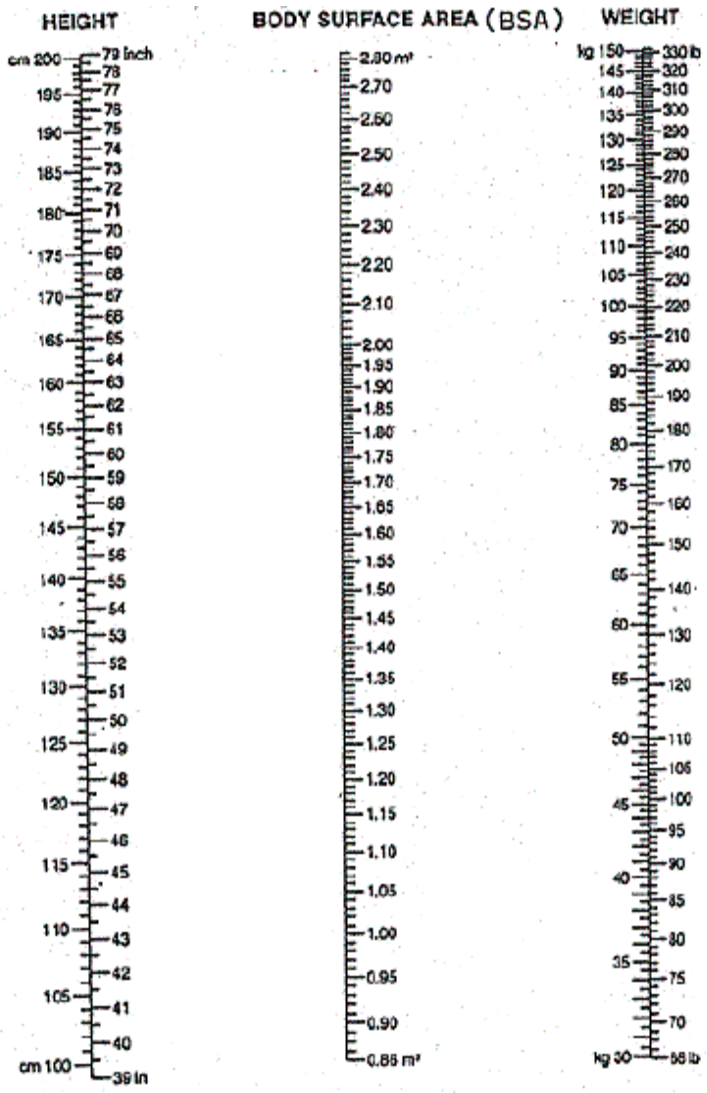
Give dacarbazine 250 mg/m^2/day × 5 days.
Patient height: 5 ft 10 in
Patient weight: 173 lb
What is the daily dose with
a. square root method?
b. nomogram?

ANS:

a. $\sqrt{\frac{70 \times 173}{3131}} = \sqrt{3.8677} = 1.97\,\text{m}^2$

250 mg/m^2/day × 1.97 m^2 = 493 mg/day
b. Height 70 in, weight 173 lb, intersects 2.02 m^2
250 mg/m^2/day × 2.02 m^2 = 505 ≈ 500 mg/day

4. For the following questions, use the square root method and/or nomogram. Note discrepancies between methods.



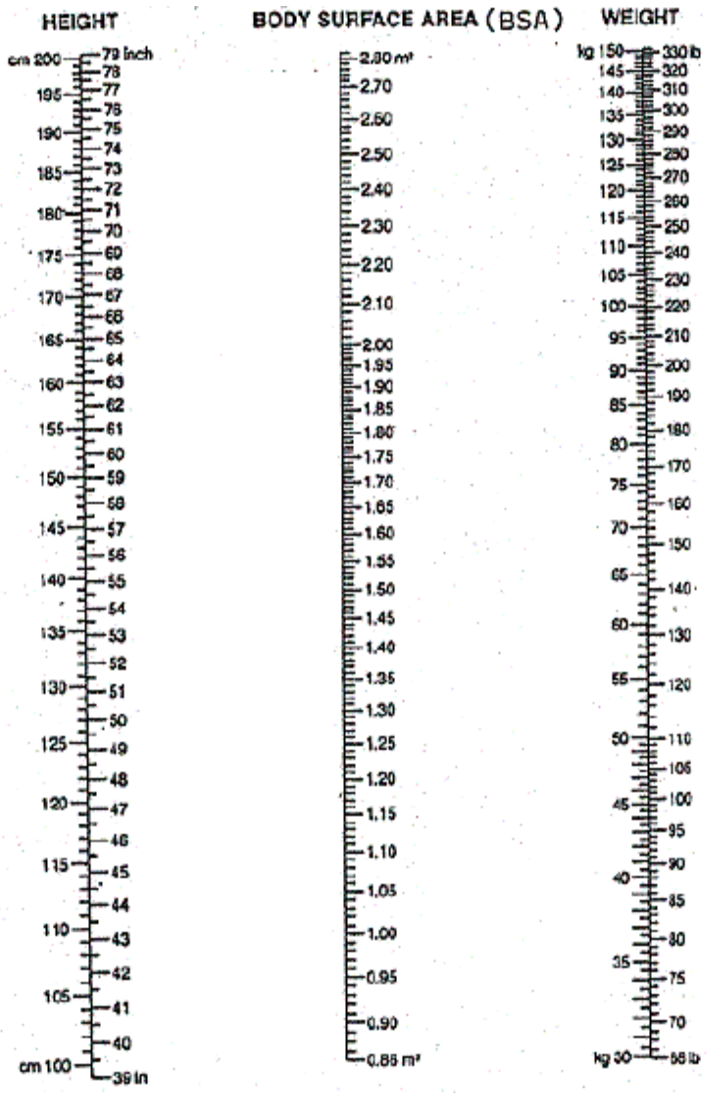
Give 5-fluorouracil 450 mg/m^2/wk.
Patient height: 5 ft 6 in
Patient weight: 210 lb
What is the weekly dose with
a. square root method?
b. nomogram?

ANS:

a. $\sqrt{\frac{66 \times 210}{3131}} = \sqrt{4.43} = 2.10\ \text{m}^2$

450 mg/m^2/wk × 2.10 m^2 = 945 mg/wk
b. Height 66 in, weight 210 lb, intersects 2.04 m^2
450 mg/m^2/wk × 2.04 m^2 = 918 ≈ 920 mg/wk

5. For the following questions, use the square root method and/or nomogram. Note discrepancies between methods.



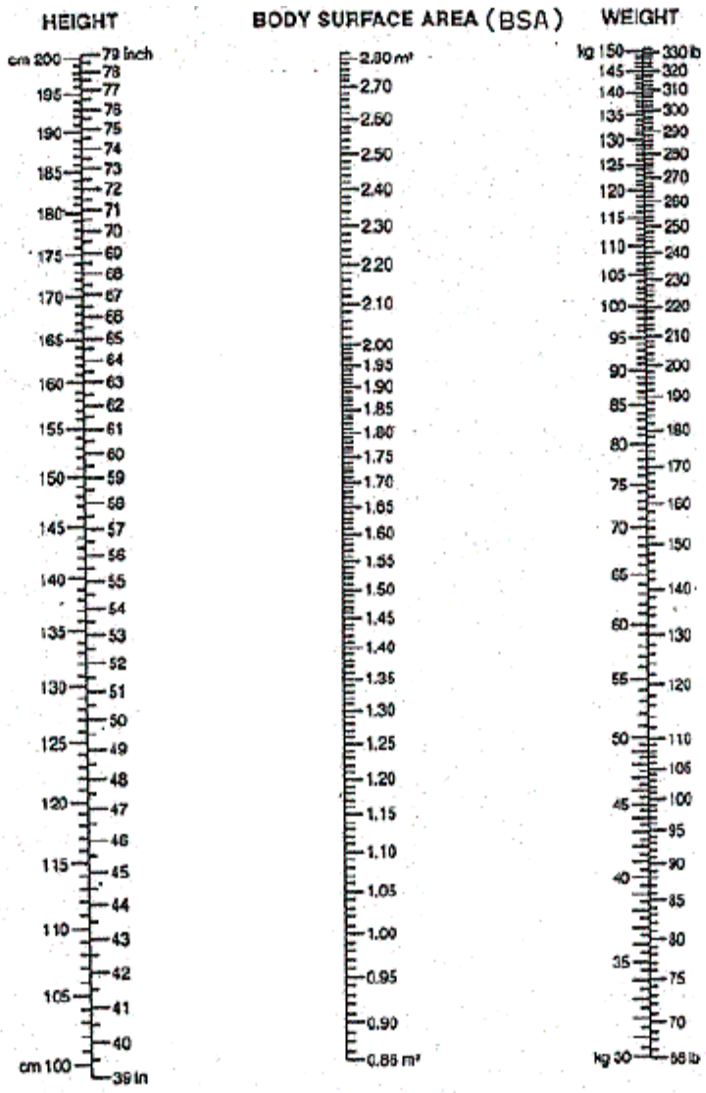
Give leucovorin 200 mg/m^2/wk.
Patient height: 5 ft 6 in
Patient weight: 210 lb
What is the weekly dose with
a. square root method?
b. nomogram?

ANS:

a. $\sqrt{\frac{66 \times 210}{3131}} = \sqrt{4.43} = 2.10\ \text{m}^2$

200 mg/m^2/wk × 2.10 m^2 = 420 mg/wk
b. Height 66 in, weight 210 lb, intersects 2.04 m^2
200 mg/m^2/wk × 2.04 m^2 = 408.00 ≈ 400 mg/wk

6. For the following questions, use the square root method and/or nomogram. Note discrepancies between methods.



Give cisplatin 30 mg/m^2/day × 3 days.
Patient height: 70 in
Patient weight: 80 kg
What is the daily dose with
a. square root method?
b. nomogram?

ANS:
a. 80 kg × 2.2 = 176 lb

$$\sqrt{\frac{70 \times 176}{3131}} = \sqrt{3.93} = 1.98\ \text{m}^2$$

30 mg/m^2/day × 1.98 m^2 = 59.4 ≈ 59 mg/day

b. Height 70 in, weight 80 kg, intersects 2.08 m^2
30 mg/m^2/day × 2.08 m^2 = 62.4 ≈ 62 mg/day

7. For the following questions, use the square root method and/or nomogram. Note discrepancies between methods.