

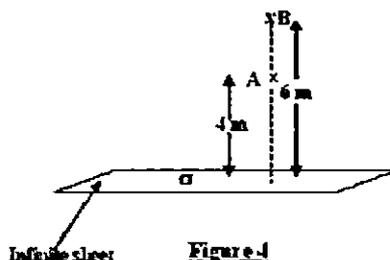
25-4 Calculating the Potential from the field

25-04

0.21-44%

Question 570

Consider an insulating infinite plane sheet of uniform charge density σ . The electric potential at point A is 200 V and at point B is 350 V as shown in Figure 4. What is the charge density on the plane sheet?



- (a) 1.33 nano-C/m²
 (b) 2.64 nano-C/m²
 (c) 0.652 nano-C/m²
 (d) -0.652 nano-C/m²
 (e) -1.33 nano-C/m²

25-04

0.40-73%

Question 571

Figure 6 shows three points X, Y and Z forming an equilateral triangle of side S in a uniform electric field of strength E. A unit positive test charge is moved from X to Y, then from Y to Z, and from Z back to X. Which one of the following correctly gives the work done by an external agent in moving the charge along the various parts of the path?

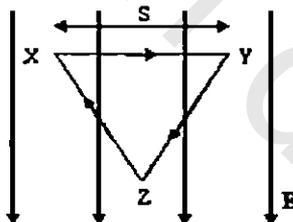


Figure 6

- (a) $-E \cdot S$, $-E \cdot S \cdot \tan(60 \text{ degrees})$, $+ E \cdot S \cdot \sin(60 \text{ degrees})$.
 (b) 0 , $-E \cdot S \cdot \cos(60 \text{ degrees})$, $+ E \cdot S \cdot \sin(60 \text{ degrees})$.
 (c) 0 , $-E \cdot S \cdot \sin(60 \text{ degrees})$, $+ E \cdot S \cdot \sin(60 \text{ degrees})$.
 (d) 0 , $-E \cdot S \cdot \cos(60 \text{ degrees})$, $+ E \cdot S \cdot \cos(60 \text{ degrees})$.
 (e) $E \cdot S$, $-E \cdot S \cdot \sin(60 \text{ degrees})$, $+ E \cdot S \cdot \cos(60 \text{ degrees})$.

25-5 Potential Due to a Point Charge

25-05

Question 572

A 4.0 nano-C point charge is located at the origin, and a second point charge (-5.0 nano-C) is placed on the y axis at $y = 60 \text{ cm}$. If point A is at (45 cm, 0) and point B is at (80 cm, 0) what is the potential difference between points A and B ($V_A - V_B$)?

- (a) 30 V
 (b) 20 V
 (c) zero
 (d) 17 V
 (e) 40 V