c18ElectricChargeField_lineCharges

The LaTex code that creates this quiz is released to the Public Domain
Attribution for each question is documented in the Appendix

Sunday 16th December, 2018

Latex markup at
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Contents

1 Quiz

1. A line of charge density λ situated on the y axis extends from y = -3 to y = 2. What is the y component of the electric field at the point (3, 7)?*Answer* (assuming $\mathcal{B} > \mathcal{A}$) *is* : $\frac{1}{4\pi\epsilon_0}\int_{\mathcal{A}}^{\mathcal{B}} \frac{\mathcal{C}\ \lambda ds}{[\mathcal{D}^2+\mathcal{E}^2]^{\mathcal{F}}}$, where $\mathcal{B}$ =[1]

   A. −7
   B. −3
   C. −3
   D. 3
   E. 2

2. A line of charge density λ situated on the y axis extends from y = 4 to y = 6. What is the y component of the electric field at the point (5, 1)?¡br /¿*Answer* (assuming $\mathcal{B} > \mathcal{A}$) *is* : $\frac{1}{4\pi\epsilon_0}\int_{\mathcal{A}}^{\mathcal{B}} \frac{\mathcal{C}\ \lambda ds}{[\mathcal{D}^2+\mathcal{E}^2]^{\mathcal{F}}}$, where $\mathcal{C}$ =:[2]

   A. a) 5
   B. b) s−4
   C. c) 5−s
   D. d) 1−s
   E. e) s−1

3. A line of charge density λ situated on the y axis extends from y = 4 to y = 6. What is the y component of the electric field at the point (5, 1)?¡br /¿*Answer* (assuming $\mathcal{B} > \mathcal{A}$) *is* : $\frac{1}{4\pi\epsilon_0}\int_{\mathcal{A}}^{\mathcal{B}} \frac{\mathcal{C}\ \lambda ds}{[\mathcal{D}^2+\mathcal{E}^2]^{\mathcal{F}}}$, where $\mathcal{F}$ =:[3]

   A. 1/2
   B. 2/3
   C. 2
   D. 3/2
   E. 3

4. A line of charge density λ situated on the x axis extends from x = 3 to x = 7. What is the x component of the electric field at the point (7, 8)?¡br /¿*Answer* (assuming $\mathcal{B} > \mathcal{A}$) *is* : $\frac{1}{4\pi\epsilon_0}\int_{\mathcal{A}}^{\mathcal{B}} \frac{\mathcal{C}\ \lambda ds}{[\mathcal{D}^2+\mathcal{E}^2]^{\mathcal{F}}}$, where $\mathcal{C}$ =:[4]

   A. s−3
   B. 3−s
   C. 8
   D. s−7
   E. 7−s

5. A line of charge density λ situated on the x axis extends from x = 3 to x = 7. What is the x component of the electric field at the point (7, 8)?¡br /¿*Answer* (assuming $\mathcal{B} > \mathcal{A}$) *is* : $\frac{1}{4\pi\epsilon_0}\int_{\mathcal{A}}^{\mathcal{B}} \frac{\mathcal{C}\ \lambda ds}{[\mathcal{D}^2+\mathcal{E}^2]^{\mathcal{F}}}$, where $\mathcal{D}^2 + \mathcal{E}^2$ =:[5]

   A. 7^2 + $(8-s)^2$
   B. 7^2 + 8^2
   C. $(7-s)^2$ + 8^2
   D. 7^2 + $(3-s)^2$
   E. 3^2 + 8^2

6. A line of charge density λ situated on the y axis extends from y = -3 to y = 2. What is the y component of the electric field at the point (3, 7)?*Answer* (assuming $\mathcal{B} > \mathcal{A}$) *is* : $\frac{1}{4\pi\epsilon_0}\int_{\mathcal{A}}^{\mathcal{B}} \frac{\mathcal{C}\ \lambda ds}{[\mathcal{D}^2+\mathcal{E}^2]^{\mathcal{F}}}$, where $\mathcal{C}$ =[6]

   A. 3−s

B. 3

C. s−7

D. 7−s

E. s−3

7. A line of charge density λ situated on the y axis extends from y = -3 to y = 2. What is the y component of the electric field at the point (3, 7)?*Answer* (assuming $\mathcal{B} > \mathcal{A}$) *is* : $\frac{1}{4\pi\epsilon_0}\int_{\mathcal{A}}^{\mathcal{B}} \frac{\mathcal{C}\ \lambda ds}{[\mathcal{D}^2+\mathcal{E}^2]^{\mathcal{F}}}$, where$\mathcal{F}$ =:[7]

A. 2

B. 3

C. 3/2

D. 1/2

8. A line of charge density λ situated on the y axis extends from y = 2 to y = 7. What is the y component of the electric field at the point (2, 9)?¡br /¿ *Answer* (assuming $\mathcal{B} > \mathcal{A}$) *is* : $\frac{1}{4\pi\epsilon_0}\int_{\mathcal{A}}^{\mathcal{B}} \frac{\mathcal{C}\ \lambda ds}{[\mathcal{D}^2+\mathcal{E}^2]^{\mathcal{F}}}$, where $\mathcal{C}$ =:[8]

A. 2

B. s − 2

C. 2 − s

D. s − 9

E. 9 − s

9. A line of charge density λ situated on the y axis extends from y = 2 to y = 7. What is the y component of the electric field at the point (2, 9)?¡br /¿ *Answer* (assuming $\mathcal{B} > \mathcal{A}$) *is* : $\frac{1}{4\pi\epsilon_0}\int_{\mathcal{A}}^{\mathcal{B}} \frac{\mathcal{C}\ \lambda ds}{[\mathcal{D}^2+\mathcal{E}^2]^{\mathcal{F}}}$, where $\mathcal{D}^2 + \mathcal{E}^2$ =:[9]

A. 9^2 + (7-s)^2

B. 9^2 + (2-s)^2

C. 7^2 + (2-s)^2

D. 2^2 + (7-s)^2

E. $\mathbf{2^2}$ + (9-s)$^\mathbf{2}$

10. A line of charge density λ situated on the x axis extends from x = 4 to x = 8. What is the y component of the electric field at the point (8, 4)?¡br /¿*Answer* (assuming $\mathcal{B} > \mathcal{A}$) *is* : $\frac{1}{4\pi\epsilon_0}\int_{\mathcal{A}}^{\mathcal{B}} \frac{\mathcal{C}\ \lambda ds}{[\mathcal{D}^2+\mathcal{E}^2]^{\mathcal{F}}}$, where $\mathcal{A}$ =:[10]

A. 1/2

B. 4

C. 2

D. 8

11. A line of charge density λ situated on the x axis extends from x = 4 to x = 8. What is the y component of the electric field at the point (8, 4)?¡br /¿*Answer* (assuming $\mathcal{B} > \mathcal{A}$) *is* : $\frac{1}{4\pi\epsilon_0}\int_{\mathcal{A}}^{\mathcal{B}} \frac{\mathcal{C}\ \lambda ds}{[\mathcal{D}^2+\mathcal{E}^2]^{\mathcal{F}}}$, where $\mathcal{C}$ =:[11]

A. s−8

B. 8−s

C. s−4

D. 4−s

E. 4

12. A line of charge density λ situated on the x axis extends from x = 4 to x = 8. What is the x component of the electric field at the point (8, 4)?¡br /¿*Answer* (assuming $\mathcal{B} > \mathcal{A}$) *is* : $\frac{1}{4\pi\epsilon_0}\int_{\mathcal{A}}^{\mathcal{B}} \frac{\mathcal{C}\ \lambda ds}{[\mathcal{D}^2+\mathcal{E}^2]^{\mathcal{F}}}$, where $\mathcal{C}$ =:[12]

A. s−8

B. 8−s

C. s−4

D. 4−s

E. 4

13. A line of charge density λ situated on the y axis extends from y = 4 to y = 6. What is the x component of the electric field at the point (5, 1)?¡br /¿*Answer* (assuming $\mathcal{B} > \mathcal{A}$) *is* : $\frac{1}{4\pi\epsilon_0}\int_{\mathcal{A}}^{\mathcal{B}} \frac{\mathcal{C}\ \lambda ds}{[\mathcal{D}^2+\mathcal{E}^2]^{\mathcal{F}}}$, where $\mathcal{C}$ =:[13]

A. 5

B. s−4

C. 5−s

D. 1−s

E. s−1

2 Attribution

Notes

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