Electric Current

Questions

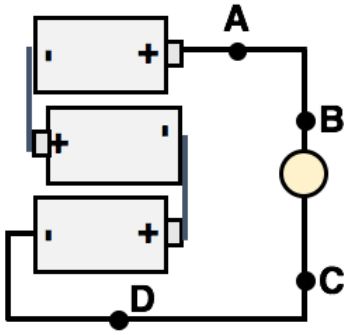
Activity 1: Fundamentals

Question Group 1

Question 1

The diagram shows a circuit with a 3-cell battery, a light bulb, and four labeled locations. Which statement describes the direction of conventional current in this circuit?

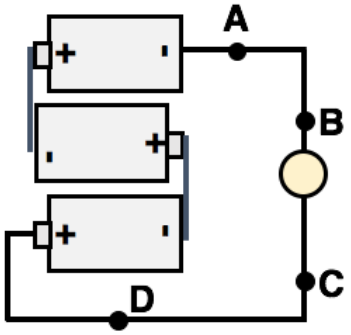
Current is directed from A to B to C to D.
Current is directed from D to C to B to A.
Current is directed from A to B and from D to C to the bulb.



Question 2

The diagram shows a circuit with a 3-cell battery, a light bulb, and four labeled locations. Which statement describes the direction of conventional current in this circuit?

Current is directed from D to C to B to A.
Current is directed from A to B to C to D.
Current is directed from A to B and from D to C to the bulb.

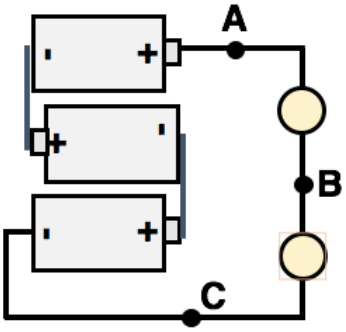


Question Group 2

Question 3

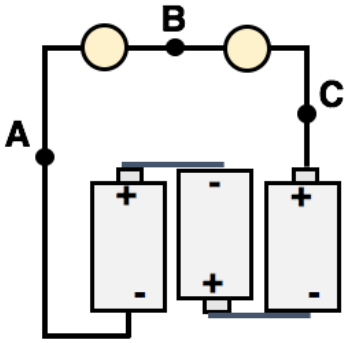
The diagram shows a circuit with a 3-cell battery, two light bulbs, and three labeled locations. Which statement describes the relative amount current at the three locations?

The current is the same at all three locations.
The current is greatest at A and least at C.
The current is greatest at C and least at A.



Question 4

The diagram shows a circuit with a 3-cell battery, two light bulbs, and three labeled locations. Which statement describes the relative amount current at the three locations?



The current is the same at all three locations.
The current is greatest at A and least at C.
The current is greatest at C and least at A.

Question Group 3
Question 5

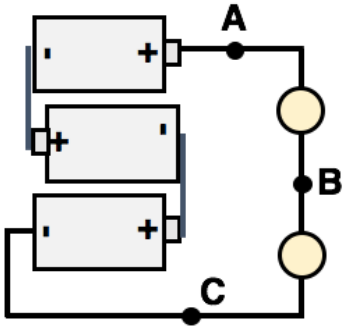
Which one of the following statements about electric current is correct?
Current refers to the rate at which charge passes by a point on a circuit.
Current refers to the speed at which charge moves through a circuit.
Current refers to the energy possessed by charge moving in a circuit.
Current refers to the amount of resistance that charge encounters in a circuit.

Question 6

Which one of the following statements about electric current is correct?
Current is calculate as the number of charges that pass a point on a circuit per time.
Current is calculated as the distance that a charge moves per unit of time.
Current is calculated as the amount of energy a charge loses per unit of time
Current is calculated as the amount of resistance a charge encounters in a given time.

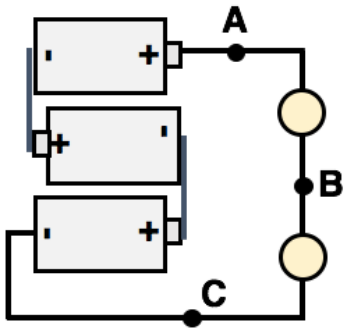
Question Group 4
Question 7

The diagram shows a circuit with a 3-cell battery, two light bulbs, and three labeled locations. If 10 units of charge flow past point A in 20 seconds, then …



5 units of charge will flow past point C in 10 seconds.
20 units of charge will flow past point C in 10 seconds.
10 units of charge will flow past point C in 10 seconds.
10 units of charge will flow past point C in 5 seconds.

Question 8



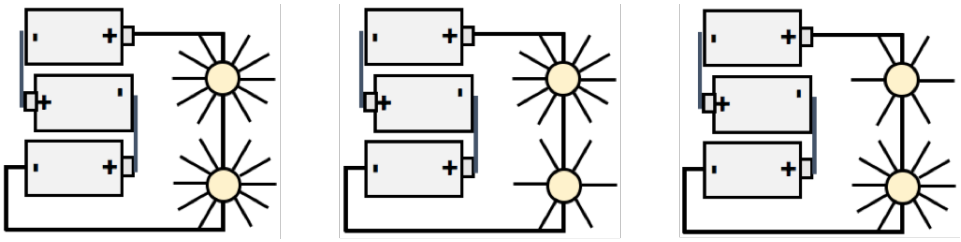
The diagram shows a circuit with a 3-cell battery, two light bulbs, and three labeled locations. If 4 units of charge flow past point A in 8 seconds, then …

2 units of charge will flow past point C in 4 seconds.
8 units of charge will flow past point C in 4 seconds.
2 units of charge will flow past point C in 8 seconds.
4 units of charge will flow past point C in 2 seconds.

Question Group 5

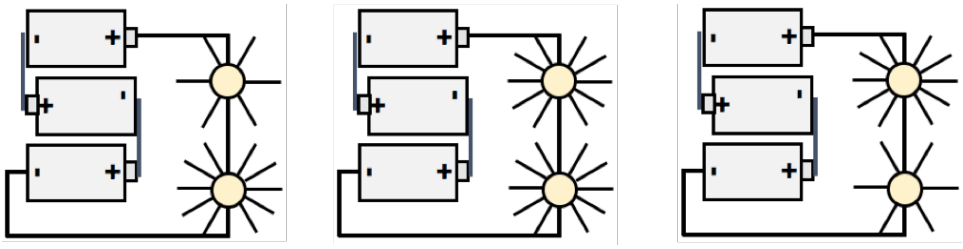
Question 9

The diagrams shows a circuit with a 3-cell battery and two light bulbs. All light bulbs are identical. Starbursts are drawn around the light bulbs to indicate their relative brightness. In which case are the starbursts correctly drawn. Tap on the diagram to select.



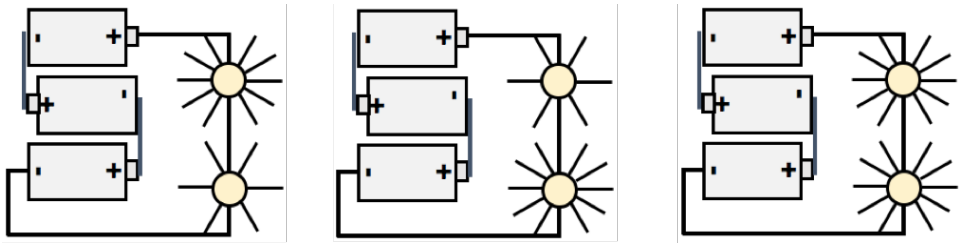
Question 10

The diagrams shows a circuit with a 3-cell battery and two light bulbs. All light bulbs are identical. Starbursts are drawn around the light bulbs to indicate their relative brightness. In which case are the starbursts correctly drawn. Tap on the diagram to select.

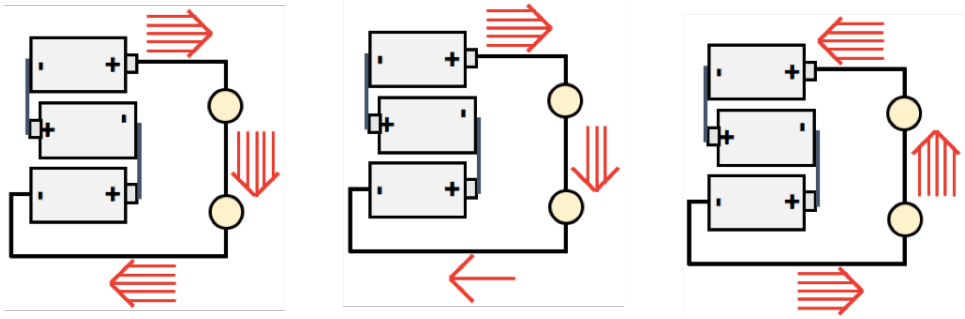


Question 11

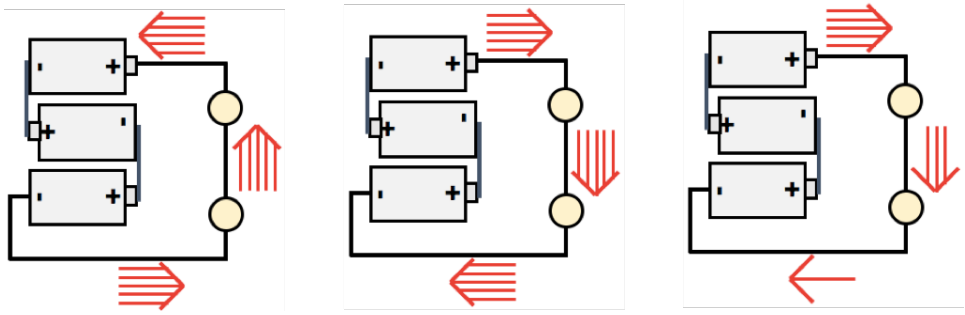
The diagrams shows a circuit with a 3-cell battery and two light bulbs. All light bulbs are identical. Starbursts are drawn around the light bulbs to indicate their relative brightness. In which case are the starbursts correctly drawn. Tap on the diagram to select.



Question Group 6
Question 12
The diagrams shows a circuit with a 3-cell battery and two light bulbs. All light bulbs are identical. Arrowtails are shown next to the wires to indicate the relative current. In which case are the arrowtails correctly drawn. Tap on the diagram to select.

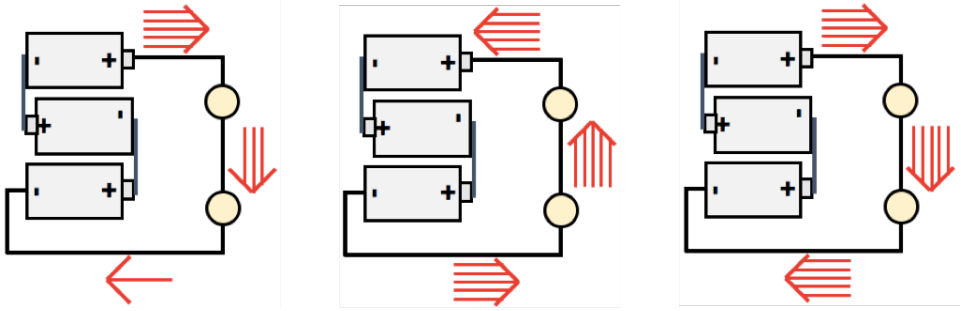


Question 13
The diagrams shows a circuit with a 3-cell battery and two light bulbs. All light bulbs are identical. Arrowtails are shown next to the wires to indicate the relative current. In which case are the arrowtails correctly drawn. Tap on the diagram to select.



Question 14

The diagrams shows a circuit with a 3-cell battery and two light bulbs. All light bulbs are identical. Arrowtails are shown next to the wires to indicate the relative current. In which case are the arrowtails correctly drawn. Tap on the diagram to select.

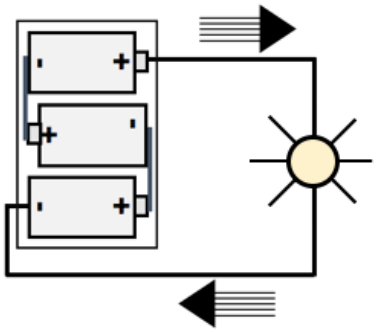


Activity 2: Case Studies

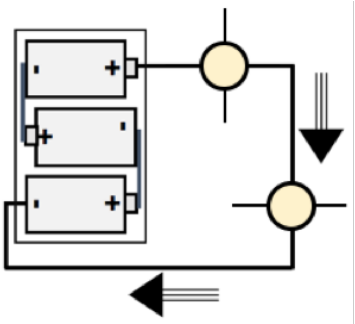
Question Group 7

Question 15

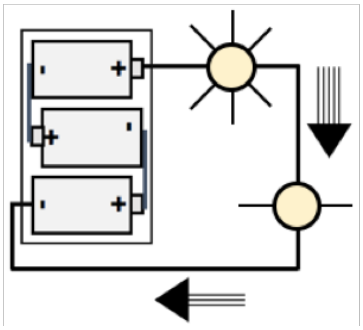
The circuit at the right shows a 3-cell, 1-bulb circuit. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current in a 3-cell, 2-bulb circuit?



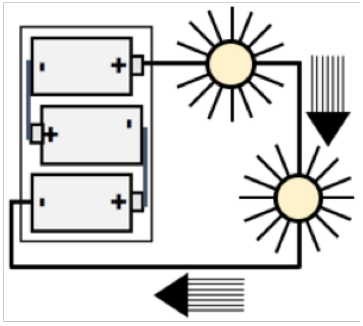
Case A



Case B

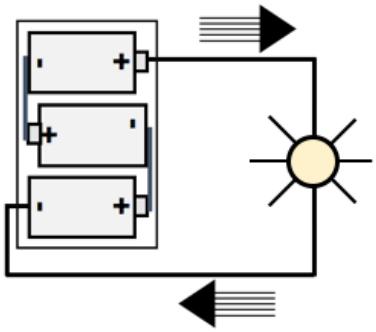


Case C

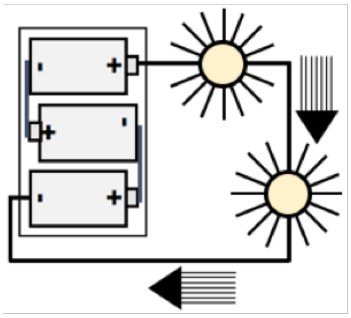


Question 16

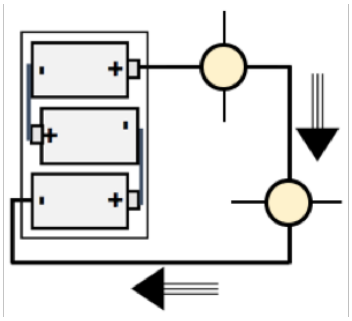
The circuit at the right shows a 3-cell, 1-bulb circuit. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current in a 3-cell, 2-bulb circuit?



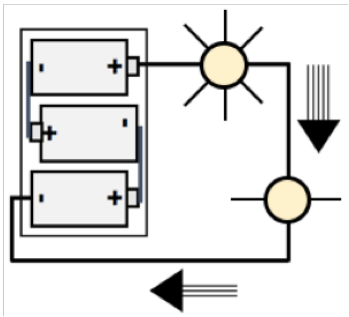
Case A



Case B

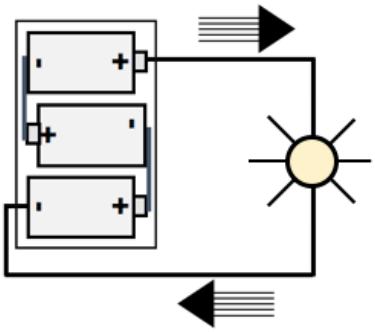


Case C

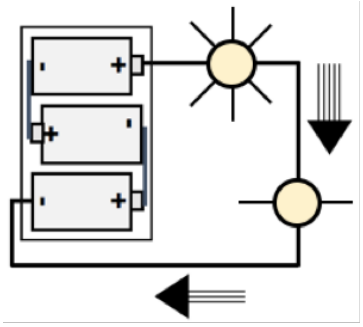


Question 17

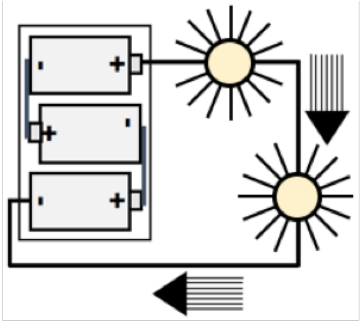
The circuit at the right shows a 3-cell, 1-bulb circuit. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current in a 3-cell, 2-bulb circuit?



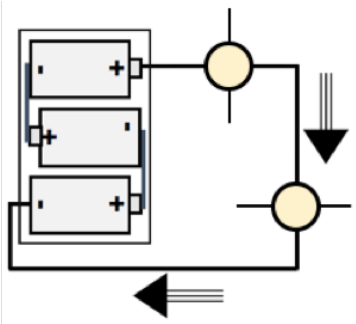
Case A



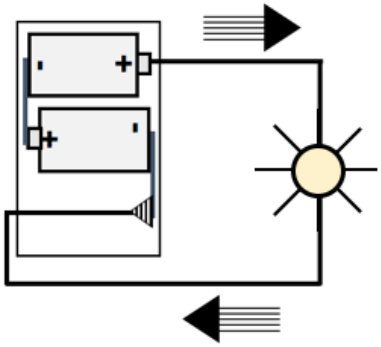
Case B



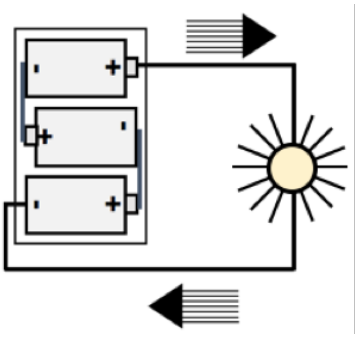
Case C



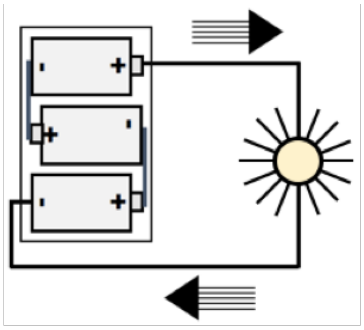
Question Group 8
Question 18
The circuit at the right shows a 2-cell, 1-bulb circuit. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current in a 3-cell, 1-bulb circuit?



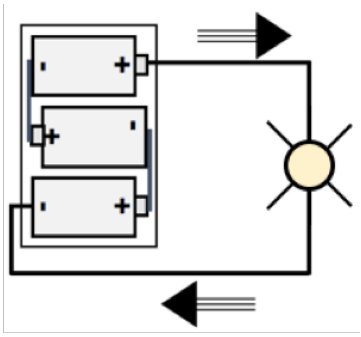
Case A



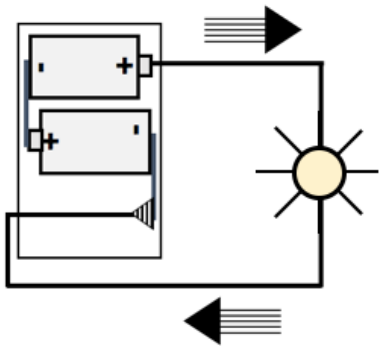
Case B



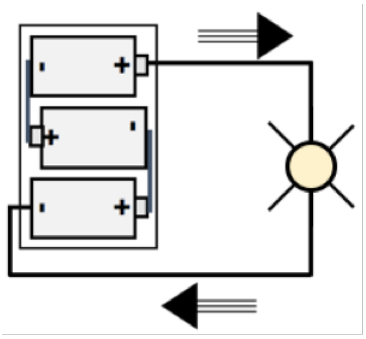
Case C



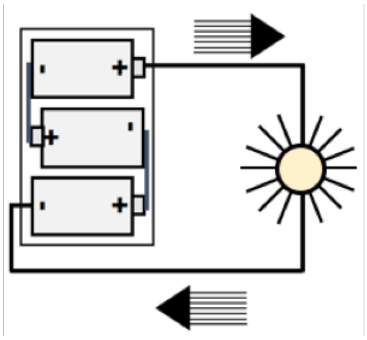
Question 19
The circuit at the right shows a 2-cell, 1-bulb circuit. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current in a 3-cell, 1-bulb circuit?



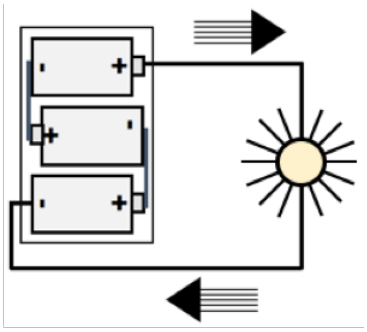
Case A



Case B

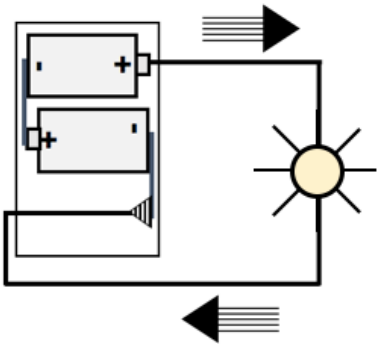


Case C

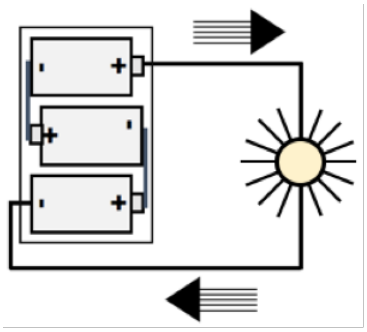


Question 20

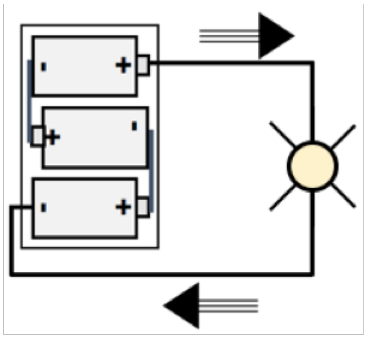
The circuit at the right shows a 2-cell, 1-bulb circuit. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current in a 3-cell, 1-bulb circuit?



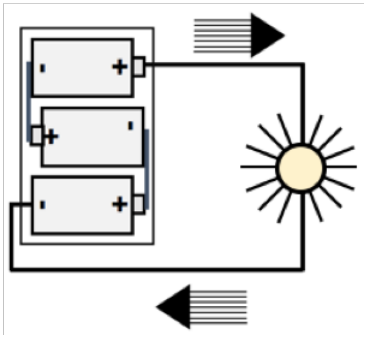
Case A



Case B



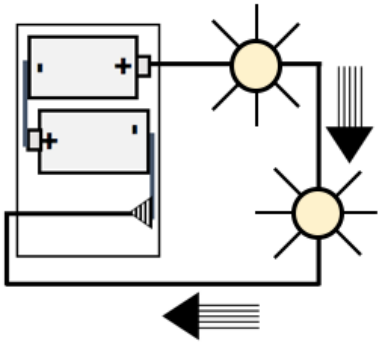
Case C



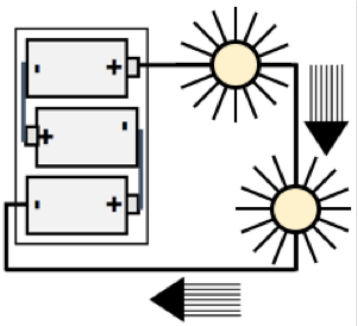
Question Group 9

Question 21

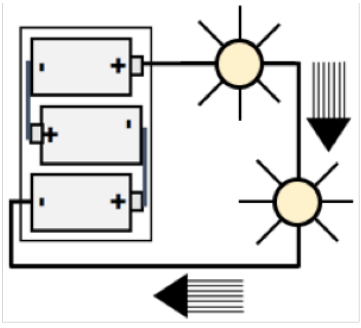
The circuit at the right shows a 2-cell, 2-bulb circuit. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current in a 3-cell, 2-bulb circuit?



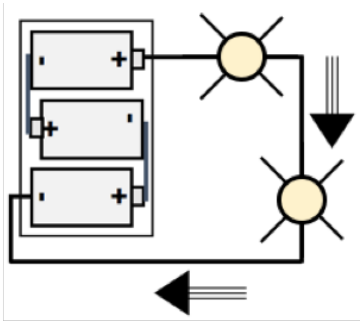
Case A



Case B

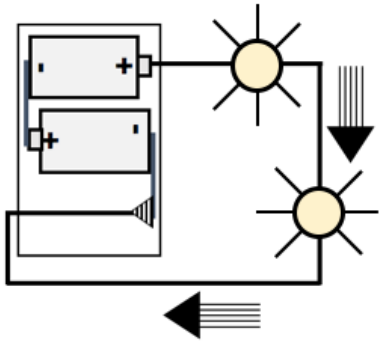


Case C

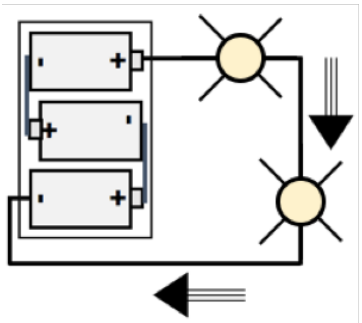


Question 22

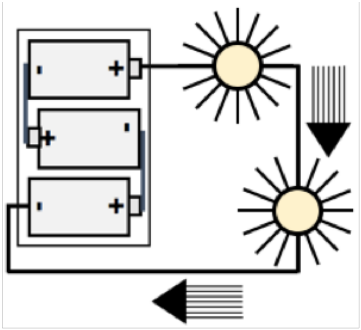
The circuit at the right shows a 2-cell, 2-bulb circuit. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current in a 3-cell, 2-bulb circuit?



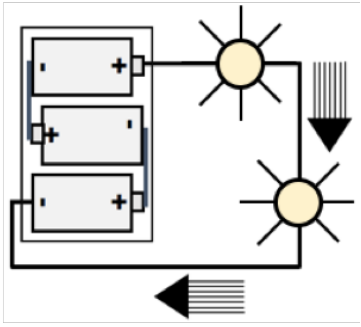
Case A



Case B

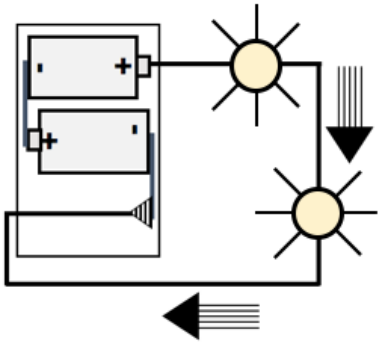


Case C

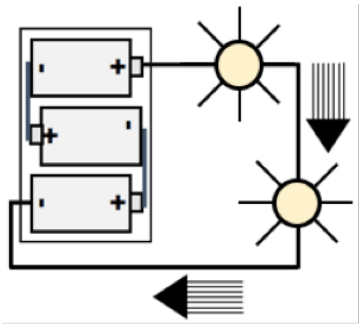


Question 23

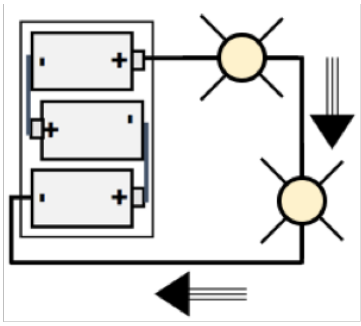
The circuit at the right shows a 2-cell, 2-bulb circuit. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current in a 3-cell, 2-bulb circuit?



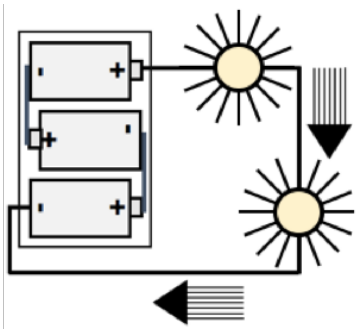
Case A



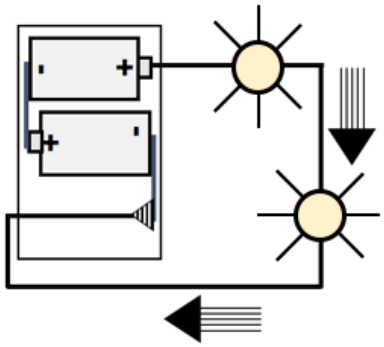
Case B



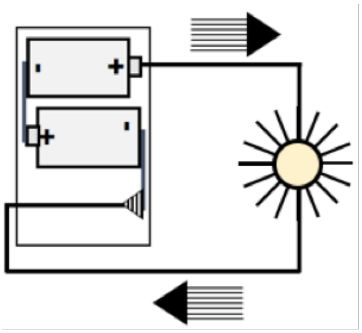
Case C



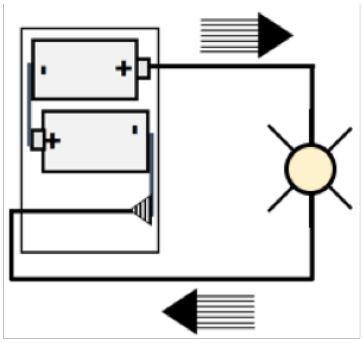
Question Group 10
Question 24
The circuit at the right shows a 2-cell, 2-bulb circuit. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current in a 2-cell, 1-bulb circuit?



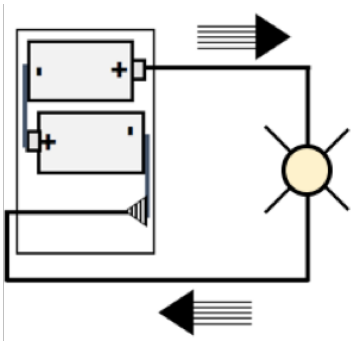
Case A



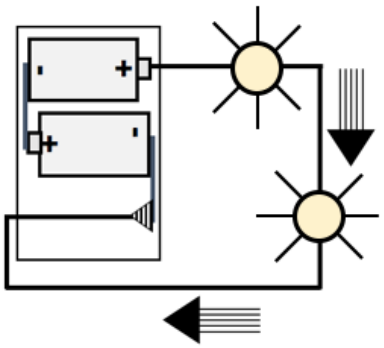
Case B



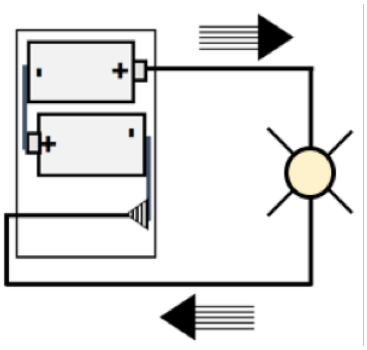
Case C



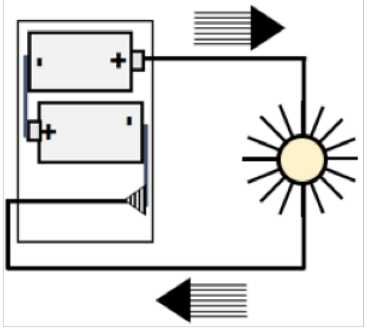
Question 25
The circuit at the right shows a 2-cell, 2-bulb circuit. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current in a 2-cell, 1-bulb circuit?



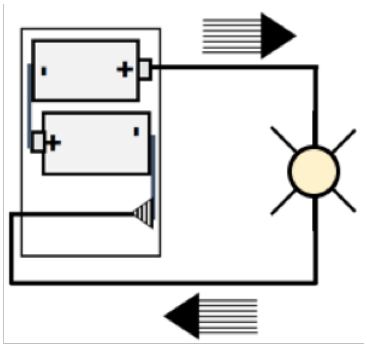
Case A



Case B

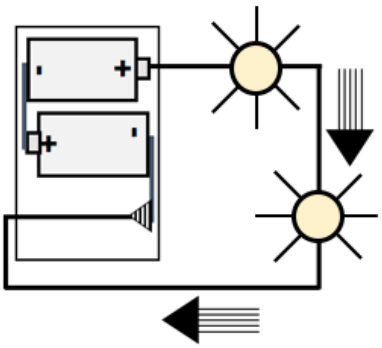


Case C

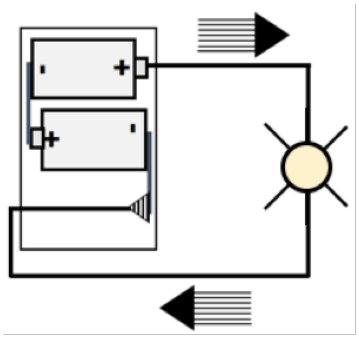


Question 26

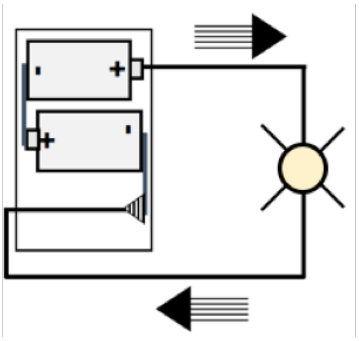
The circuit at the right shows a 2-cell, 2-bulb circuit. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current in a 2-cell, 1-bulb circuit?



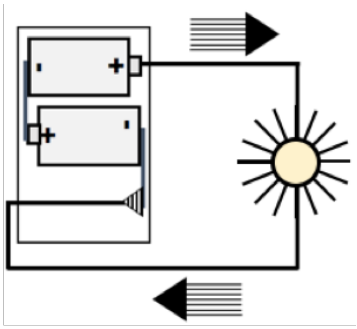
Case A



Case B



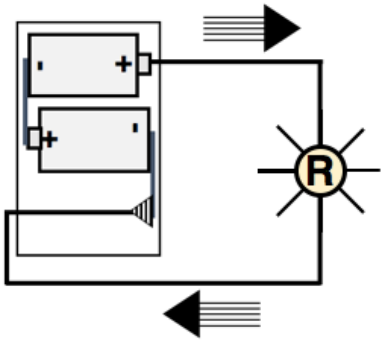
Case C



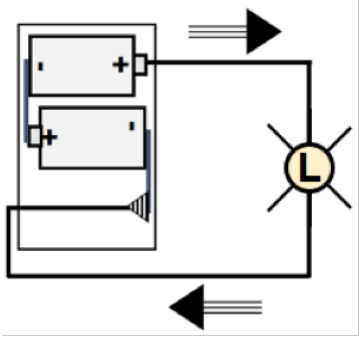
Question Group 11

Question 27

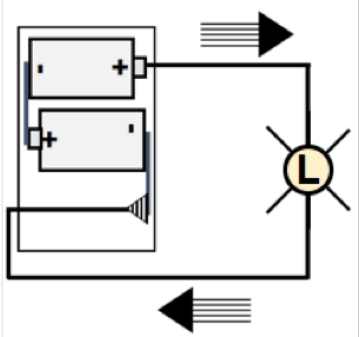
The circuit at the right shows a 2-cell, 1-bulb circuit; the bulb is a *round* bulb. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current if the round bulb is replaced by a higher-resistance *long bulb*?



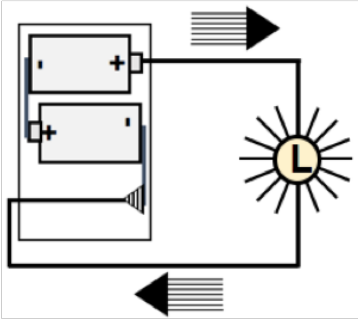
Case A



Case B

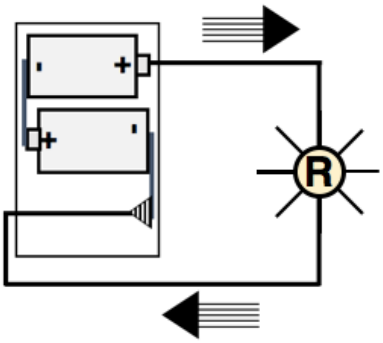


Case C

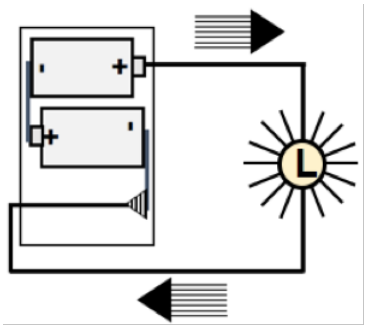


Question 28

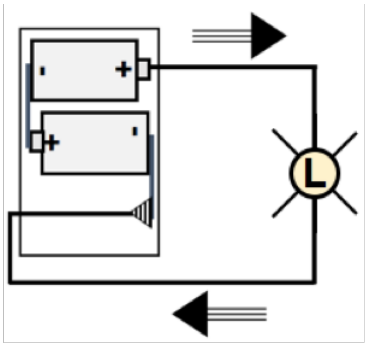
The circuit at the right shows a 2-cell, 1-bulb circuit; the bulb is a *round* bulb. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current if the round bulb is replaced by a higher-resistance *long bulb*?



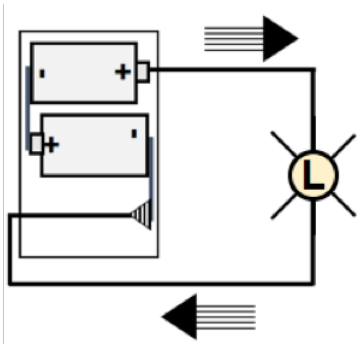
Case A



Case B

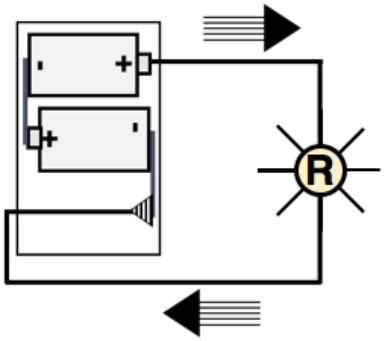


Case C

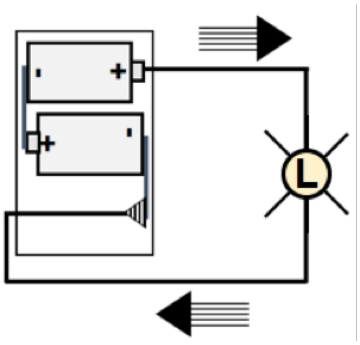


Question 29

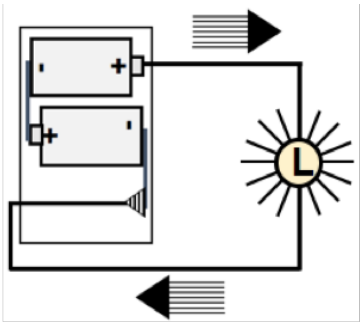
The circuit at the right shows a 2-cell, 1-bulb circuit; the bulb is a *round* bulb. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current if the round bulb is replaced by a higher-resistance *long bulb*?



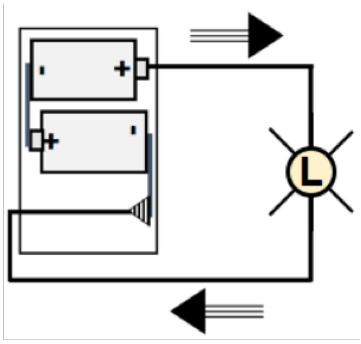
Case A



Case B



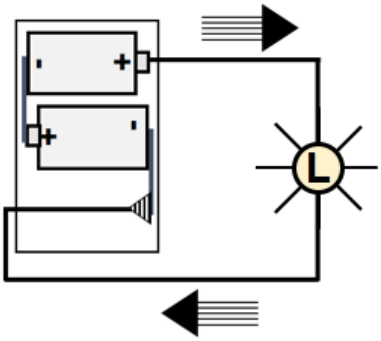
Case C



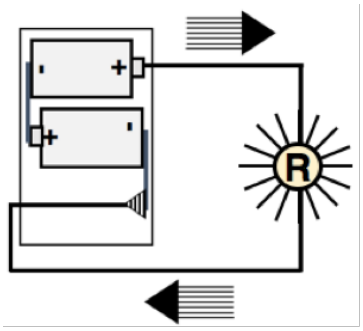
Question Group 12

Question 30

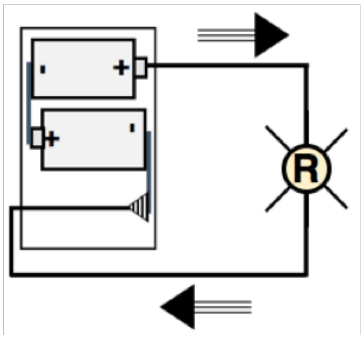
The circuit at the right shows a 2-cell, 1-bulb circuit; the bulb is a *long bulb*. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current if the long bulb is replaced by a lower-resistance *round bulb*?



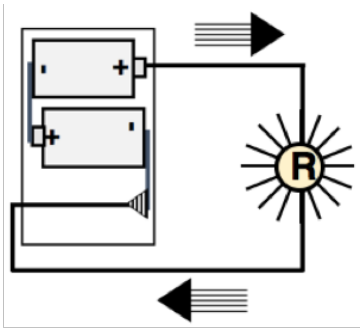
Case A



Case B

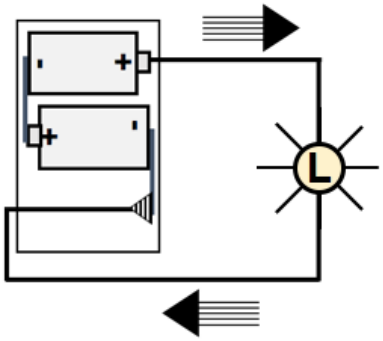


Case C

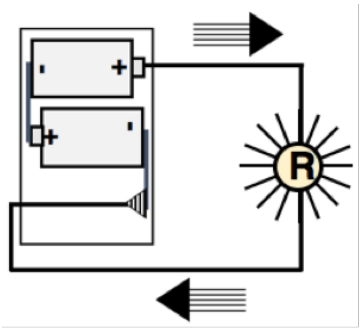


Question 31

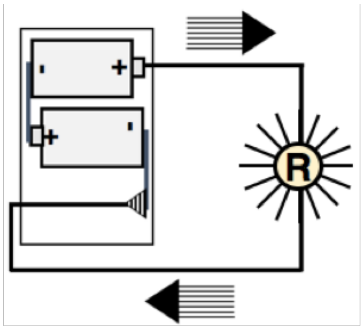
The circuit at the right shows a 2-cell, 1-bulb circuit; the bulb is a *long bulb*. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current if the long bulb is replaced by a lower-resistance *round bulb*?



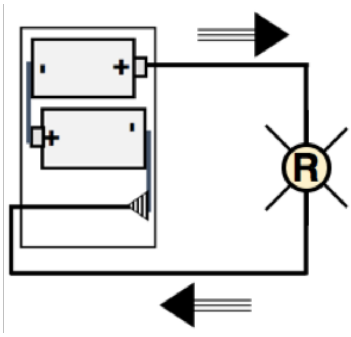
Case A



Case B

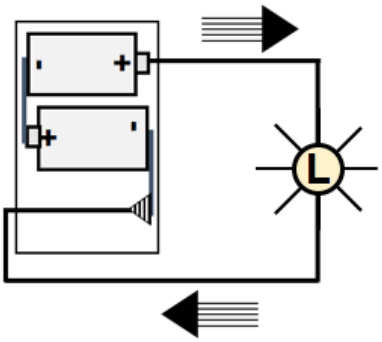


Case C

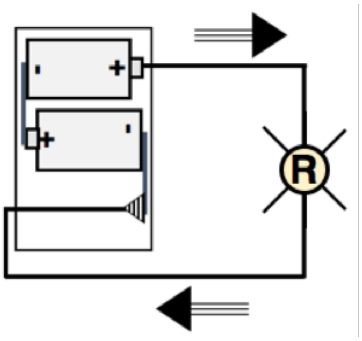


Question 32

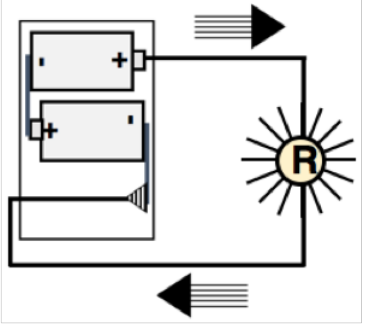
The circuit at the right shows a 2-cell, 1-bulb circuit; the bulb is a *long bulb*. Bulb brightness and current is represented by starbursts and arrowtails. Which case – A, B, or C – correctly represents bulb brightness and current if the long bulb is replaced by a lower-resistance *round bulb*?



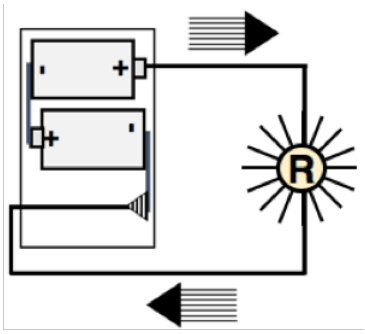
Case A



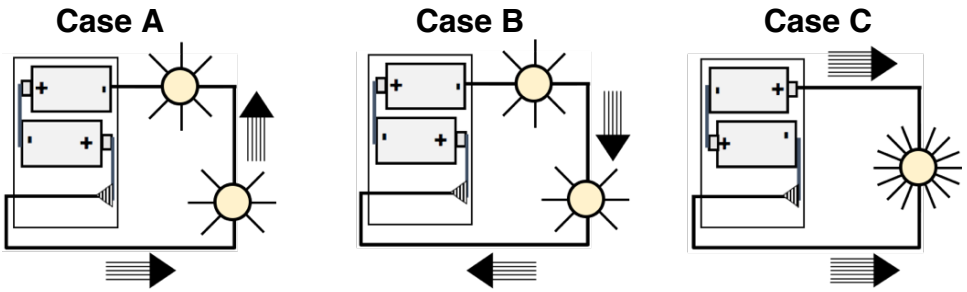
Case B



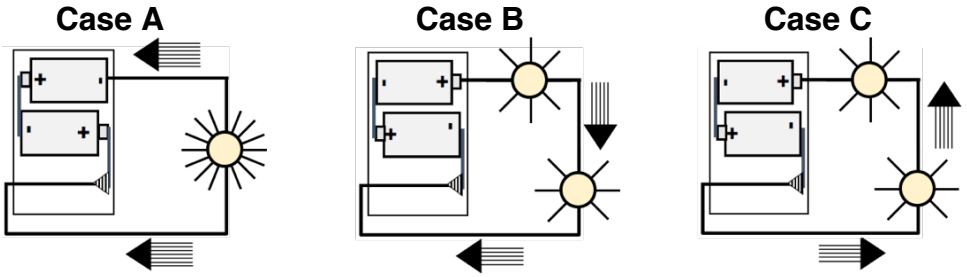
Case C



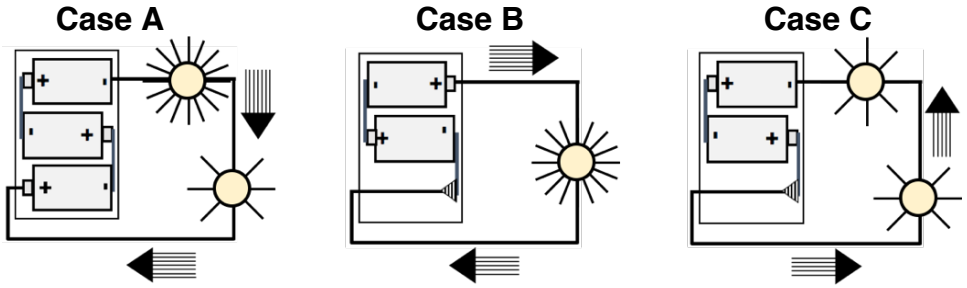
Activity 3: Law Breakers
Question Group 13
Question 33
The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.



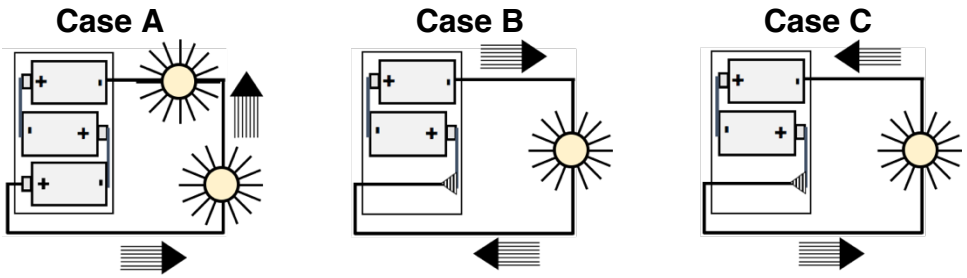
Question 34
The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.



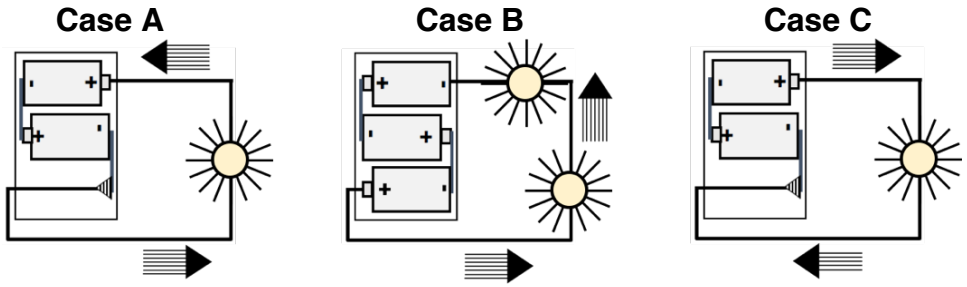
Question 35
The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.



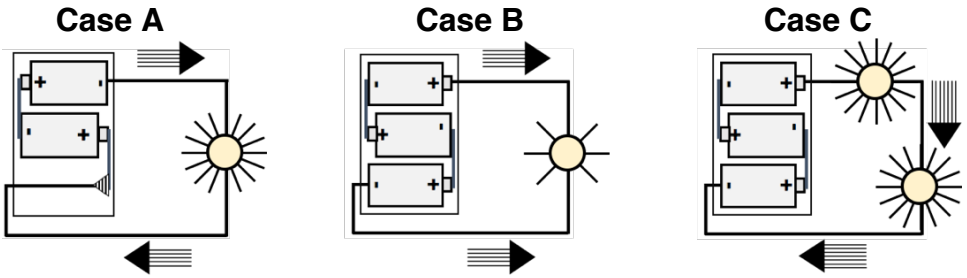
Question Group 14
Question 36
The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.



Question 37
The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.



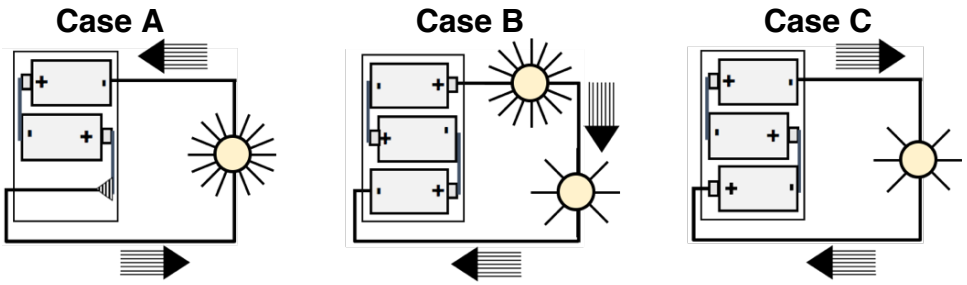
Question 38
The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.



Question Group 15

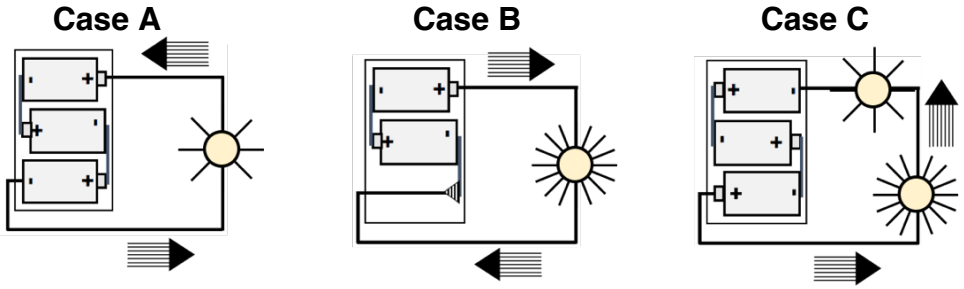
Question 39

The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.



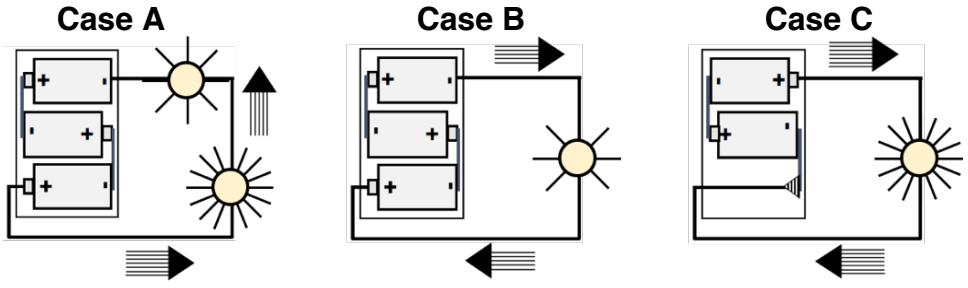
Question 40

The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.

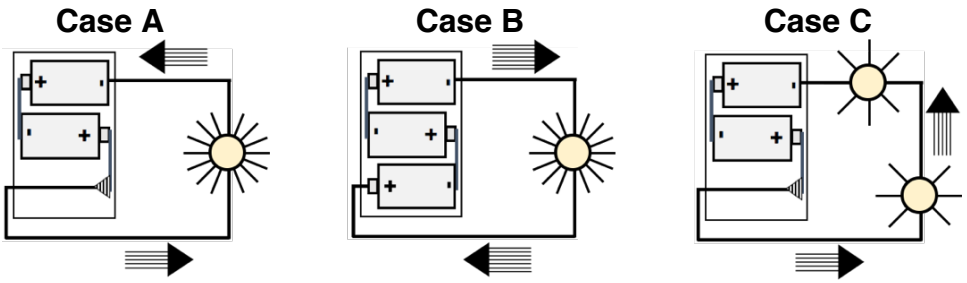


Question 41

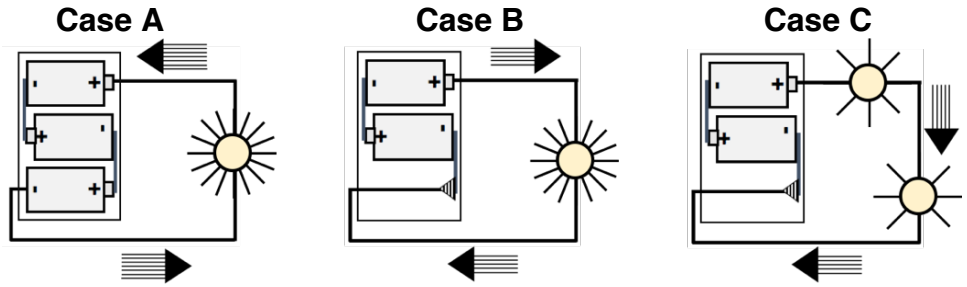
The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.



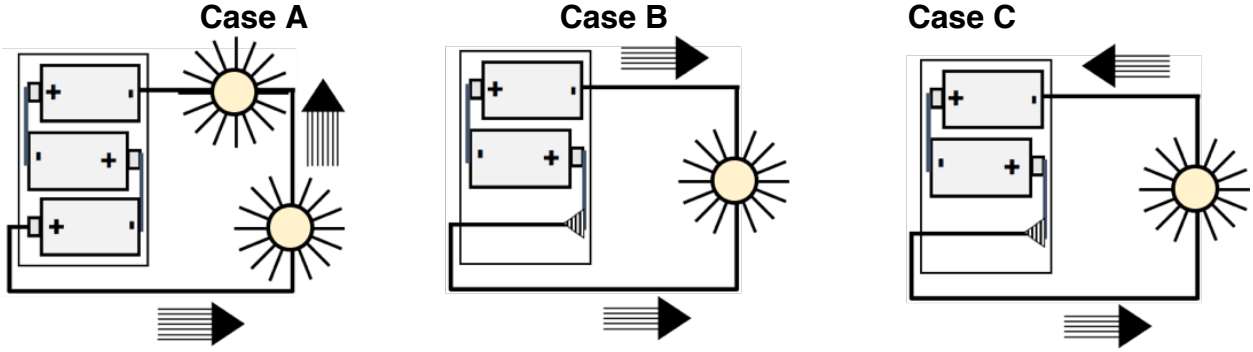
Question Group 16
Question 42
The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.



Question 43
The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.



Question 44
The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.

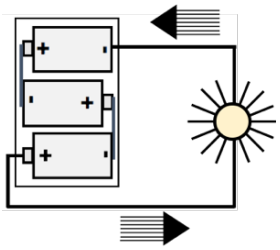


Question Group 17

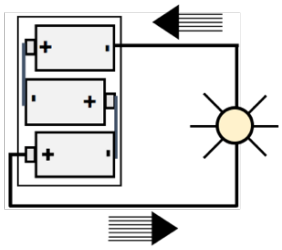
Question 45

The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.

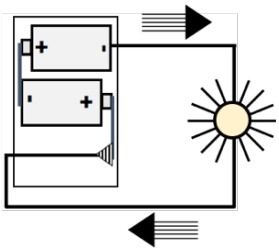
Case A



Case B



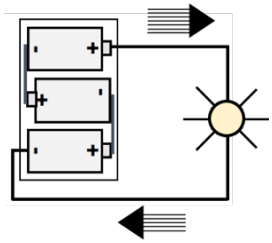
Case C



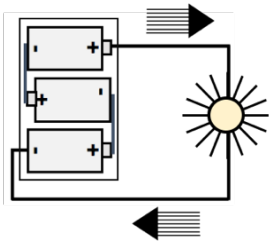
Question 46

The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.

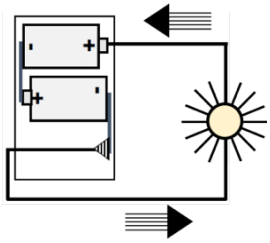
Case A



Case B



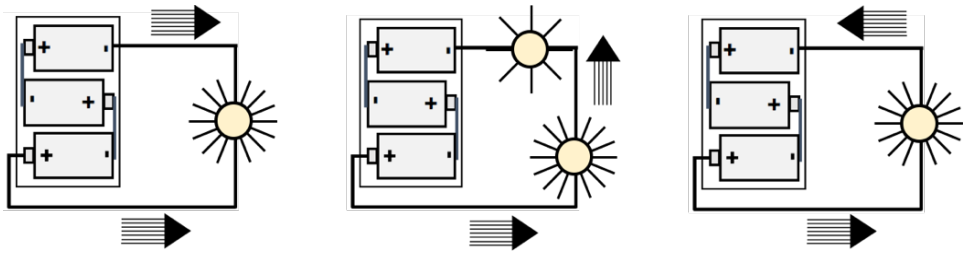
Case C



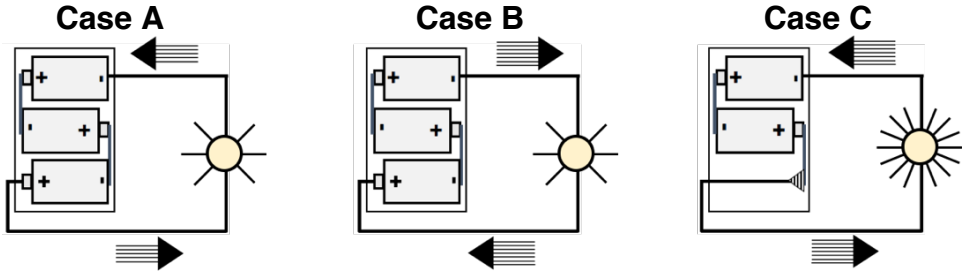
Question 47

The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.

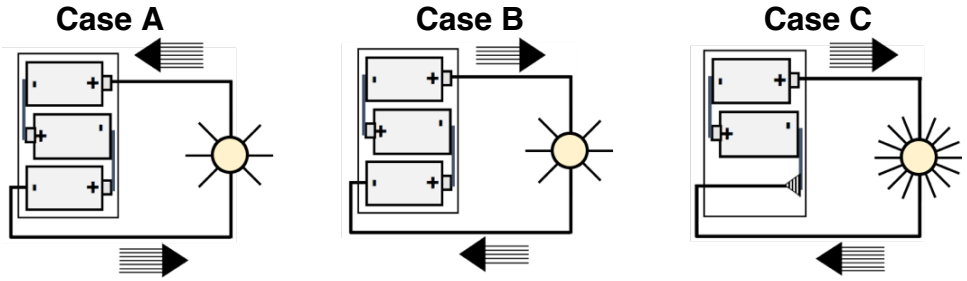
Case A **Case B** **Case C**



Question Group 18
Question 48
The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.

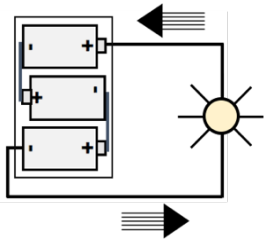


Question 49
The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.

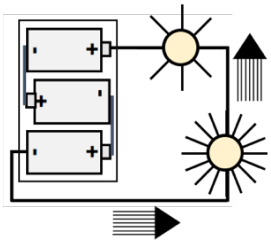


Question 50
The diagrams represent bulb brightness using starbursts and current using arrowtails. Give attention to the relative brightness of bulbs, to the relative current, and to the current direction. Select any diagrams that incorrectly convey a current concept.

Case A



Case B



Case C