There are 5 houses on a street: house A, B, C, D and E. The distance between any two adjacent houses is 100 feet. There are 2 children living in house A, 3 children living in house B, 4 children living in house C, 5 children living in house D and 6 children living in house E. If the school bus can only make one stop on that street, in front of which house should the bus stop so that the sum of walking distance among all children will be the least?

Solution: House D.
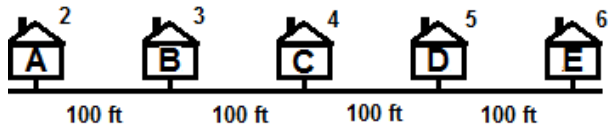
If the bus stops at house A, we will have

- 2 children walk 0 ft;
- 3 children walk 100 ft each;
- 4 children walk 200 ft each;
- 5 children walk 300 ft each;
- 6 children walk 400 ft each

Altogether, they walk 5000 ft.

If the bus stops at house B, we will have

- 3 children walk 0 ft;
- 6 children walk 100 ft each;
- 5 children walk 200 ft each;
- 6 children walk 300 ft each

Altogether, they walk 3400 ft.

If the bus stops at house C, we will have

- 4 children walk 0 ft;
- 8 children walk 100 ft each;
- 8 children walk 200 ft each;

Altogether, they walk 2400 ft.

If the bus stops at house D, we will have

- 5 children walk 0 ft;
- 10 children walk 100 ft each;
- 3 children walk 200 ft each;
- 2 children walk 300 ft each;

Altogether, they walk 2200 ft.

If the bus stops at house E, we will have

- 6 children walk 0 ft;
- 5 children walk 100 ft each;
- 4 children walk 200 ft each;
- 3 children walk 300 ft each;
- 2 children walk 200ft each.

Altogether, they walk 2600 ft.

Children walk the least if the bus stops at House D.