

Nathaniel is building a doghouse.

The doghouse needs 32 boards that are each  $2\frac{3}{4}$  feet long.

The store does not sell  $2\frac{3}{4}$  ft long boards, so Nathaniel needs to buy longer boards and cut them to the right length.



The store's website shows the cost of four different lengths of boards:

8 ft


 Compare

**Kiln-Dried Hem-Fir Stud (Common: 2-in x 4-in x 96-in; Actual: 1-1/2-in x 3-1/2-in x 96-in)**  
Not Yet Rated

Item #: 26818 | Model #: 13765

- Use for a wide range of construction and project applications

**\$2.50**

Was: \$2.82  
Save 11%

Qty.:

Add to Cart +

10 ft


 Compare

**#2 Green Douglas-Fir S4S Dimensional Lumber (Common: 2 x 4 x 10; Actual: 1.562-in x 3.562-in x 10-ft)**

★★★★★ (2 Reviews)

Item #: 50563 | Model #: NA

- Selected for strength and appearance
- Surfaced on 4 sides
- Use for a wide range of construction and project applications

**\$4.39**

Qty.:

Add to Cart +

12 ft


 Compare

**#2 Green Douglas-Fir S4S Dimensional Lumber (Common: 2 x 4 x 12; Actual: 1.562-in x 3.562-in x 12-ft)**

★★★★★ (3 Reviews)

Item #: 51516 | Model #: NA

- Selected for strength and appearance
- Surfaced on 4 sides
- Use for a wide range of construction and project applications

**\$5.27**

Qty.:

Add to Cart +

16 ft


 Compare

**#2 Green Douglas-Fir S4S Dimensional Lumber (Common: 2 x 4 x 16; Actual: 1.562-in x 3.562-in x 16-ft)**

Not Yet Rated

Item #: 51585 | Model #: NA

- Selected for strength and appearance
- Surfaced on 4 sides
- Use for a wide range of construction and project applications

**\$7.05**

Qty.:

Add to Cart +

Which size should Nathaniel buy to make the dog house: 8 ft, 10 ft, 12 ft, or 16 ft boards? Why? How many will he need? Justify your answer with mathematical evidence.