



Problem of the Week

Problem B

Farmer Holly's Hay Wagon

Farmer Holly has a wagon with a wood deck and four tires. When empty, the wagon has a total mass of 770 kg. She uses her wagon to transport hay bales in the shape of rectangular prisms. Each hay bale is 1.4 m long by 1.5 m wide by 2 m high, and has a mass of 300 kg.

- (a) Each of the four tires on the wagon has a maximum load of 1100 kg. That is, with each tire an additional 1100 kg can be added to the load on the wagon. How many hay bales could Farmer Holly put on her wagon without risking a tire blowout? Don't forget that the tires are also carrying the load of the wagon itself!
- (b) Her wagon deck is 5.6 m long and 3 m wide. Farmer Holly wants to tightly pack the hay bales on the wagon with the 1.4 m by 1.5 m side face down on the wagon. How many hay bales can she fit on her wagon if she does not stack them?

