

Seat belts and air bags save lives by reducing the forces exerted on the driver and passengers in an automobile collision. Cars are designed with a "crumple zone" in the front of the car. In the event of an impact, the passenger compartment decelerates over a distance of about 1 m as the front of the car crumples. An occupant restrained by seat belts and air bags decelerates with the car. By contrast, an unrestrained occupant keeps moving forward with no loss of speed (Newton's first law!) until hitting the dashboard or windshield. These are unyielding surfaces, and the unfortunate occupant then decelerates over a distance of only about 5 mm .

Part A Part complete A 60 kg person is in a head-on collision. The car's speed at impact is 15 m/s . Estimate the net force on the person if he or she is wearing a seat belt and if the air bag deploys.

Answer:

The net force is 1350 kN

Solution:

As per the question:

Mass of man, $m = 60 \text{ kg}$

Initial speed of the car, $v = 15 \text{ m/s}$

Final speed of the car, $v' = 0 \text{ m/s}$

Distance covered by the person before coming to rest, $d = 5 \text{ mm} =$

By using the third eqn of motion:

Thus the force on the person can be given by:

$F = ma =$

A scientist plans to find out the percent of teenagers who like science. She interviews 500 teenagers leaving a science museum and finds that 450 of them like science. The scientist concludes that 90 percent of teenagers like science. Why is the scientist's conclusion most likely unreliable? adults were not interviewed the investigation was time consuming the source of information was biased very few teenagers were interviewed 2/10 clear and 18/100 orange. The rest are red and blue. There are 2 more red marbles than blue marbles. What fraction represents the number of red and blue marbles?

During a busy time at the bakery counter a loyal customer/member stops you to chat 1.As he's talking you notice a customer/member nearby that needs help What would you be most and least likely to do

Today I wore two different shoes! Oh boy! I am a mess! Fell on my face and got a bruise Oh boy! I am a mess! I poured some ketchup on my dress Oh boy! I am a mess! The dress was white if you could guess Oh boy! I am a mess! 1. How does the poet create a rhythm for this poem? by writing about a character who is always late by repeating the phrase "Oh boy! I am a mess!" by making each line have the same number of syllables by rhyming the words "shoes" and "bruise"

Alexis is out mowing the lawn and starts to feel dehydrated. Her will secrete vasopressin. If her dehydration becomes severe, her secretion of vasopressin will . When the government bails out failing banks, it creates a moral hazard problem; but when the government bails out homeowners who are defaulting on their mortgages, there is no moral hazard problem.TrueFalse

Which of the following would be a reasonable estimate for the weight of a pencil?

A country's gross domestic product measures _____. A. the level of education reached by most citizens B. the number of different products sold by the country's businesses C. the total number of government construction projects completed each year D.the value of all final goods and services produced within a country in a given year

Choose the best transitions to complete the passage Football is an important part of the high school experience in many towns around the nation. Studies show, , that helmets do not provide enough protection for the brain. , some players can end up with brain damage. A blow to the head causes a concussion, which means that the brain hits the skull. , schools should consider whether the game is worth the risk.

PLEASE ANSWER!!!! 20 POINTS

Is considered the primary author of the declaration of independence

is mostly unicellular, eukaryotic, and is comprised of eukaryotes that do not fit into other eukaryotic kingdoms.

PLILILILILl HeLp AsAp!!! :(which example does not show people interacting with the environment?

A.using rich soil for farming

B.cutting down trees for firewood

C.mining coal

D.warming a lake with sunlight

Blade pays tax of \$5,000 on taxable income of \$50,000 while Caden pays tax of \$12,000 on taxable income of \$100,000. What type of tax rate structure appears to be in force? a. Regressive\$

b. Graduated

c. Progressive

d. Proportional

Rewrite using a single positive exponent.

$7^9 \times 7^{-3}$

The central american country where english is spoken, but where spanish will eventually become the predominant language is:

“Perhaps one of the most important accomplishments of my administration has been minding my own business.” Who expressed his political philosophy in this quotation?

A.

Warren Harding in regard to corruption

B.

William Howard Taft in regard to the Supreme Court

C.

Calvin Coolidge in regard to active government

D.

Woodrow Wilson in regard to foreign affairs

Children typically breathe more often per minute than adults.

A) True

B) False

Please help i will thank and rate 5 star! What is the sign of the product?

$(-19)(2)(37)(-0.8)(-112)$

A.

negative

B.

positive

1. [Home](#)
2. [More Solution](#)