

Name: _____

Class: 701/702/703 Date: _____

Expressions and Equations Test

Directions: Part 1. You do not get a calculator for these questions.

The label on a $1\frac{1}{2}$ -pound bag of wildflower seeds states that it will cover an area of 375 square feet. Based on this information, what is the number of square feet that 1 pound of wildflower seeds will cover?

A $\frac{1}{250}$

B 250

C $562\frac{1}{2}$

D 750

The Lions won 16 games last year. This year the Lions won 20 games. What is the percent increase in the number of games the Lions won from last year to this year?

A 20%

B 25%

C 80%

D 125%

The table shows prices for shoe rental, games, and snacks at the bowling alley.

BOWLING ALLEY PRICES

Item	Price
Shoe rental	\$2.75
One game of bowling	\$2.50
Small soda	\$0.95
Large soda	\$1.50
Nachos	\$1.75

Gina rented shoes, bowled 3 games, and bought 1 order of nachos. She used a coupon for $\frac{1}{2}$ off the price of her bowling games. What was Gina's total cost before tax was added?

- A \$5.75
- B \$6.00
- C \$8.25
- D \$12.00

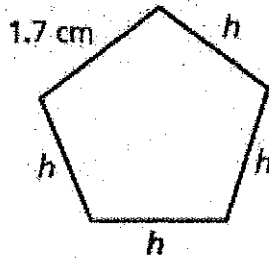
Scientists determined that Antarctica's average winter temperature was -34.44°C . The difference between this temperature and Antarctica's highest recorded temperature was 49.44 degrees. What was Antarctica's highest recorded temperature?

- A -83.88°C
- B -15°C
- C 15°C
- D 83.88°C

Addison wants to ride her bicycle more than 80 miles this week. She has already ridden her bicycle 18 miles. Which inequality could be used to determine the mean number of miles, m , she would need to ride her bicycle each day for six more days to achieve her goal?

- A $6m + 18 < 80$
- B $6m - 18 < 80$
- C $6m + 18 > 80$
- D $6m - 18 > 80$

The perimeter of a certain pentagon is 10.5 centimeters. Four sides of this pentagon have the same length, in centimeters, h , and the other side has a length of 1.7 centimeters, as shown below.



What is the value of h ?

- A 2.2
- B 3.7
- C 4.8
- D 8.8

A trailer will be used to transport several 40-kilogram crates to a store. The greatest amount of weight that can be loaded onto the trailer is 1,050 kilograms. An 82-kilogram crate has already been loaded onto the trailer. What is the greatest number of 40-kilogram crates that can also be loaded onto the trailer?

- A 24
- B 25
- C 26
- D 27

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Directions: In order to receive full credit on the free response questions you need to write and solve an equation or an inequality if the question requires it. You can use a calculator on this part. However, make sure you show your work for the multiple choice.

What is the radius, in centimeters, of a circle that has a circumference of 16π centimeters?

- A 8
- B 16
- C 32
- D 64

Mike took a taxi from his home to the airport. The taxi driver charged an initial fee of \$6 plus \$3 per mile. The total fare was \$24, not including the tip. How many miles did Mike travel by taxi on this ride?

- A 2
- B 6
- C 8
- D 10

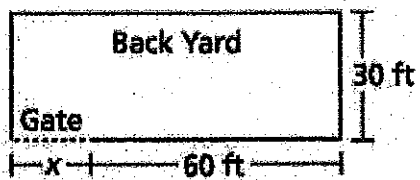
The original selling price of a share of stock was d dollars. The selling price for a share of the same stock at a later date was represented by the expression $1.15(0.95d)$. Which description could explain what happened to the price of the share of stock?

- A The price decreased by 5% and then increased by 0.15%.
- B The price decreased by 95% and then increased by 0.15%.
- C The price decreased by 5% and then increased by 15%.
- D The price decreased by 95% and then increased by 15%.

Lance bought n notebooks that cost \$0.75 each and p pens that cost \$0.55 each. A 6.25% sales tax will be applied to the total cost. Which expression represents the total amount Lance paid, including tax?

- A $0.0625(n + p) + 0.0625(0.75n + 0.55p)$
- B $(0.75n + 0.55p) + 0.0625(0.75n + 0.55p)$
- C $0.75(0.0625n) + 0.55(0.0625n)$
- D $0.75(1.0625n) + 0.55(1.0625n)$

When Keisha installed a fence along the 200-foot perimeter of her rectangular back yard, she left an opening for a gate. In the diagram below, she used x to represent the length, in feet, of the gate.



What is the value of x ?

- A 10
- B 20
- C 25
- D 30

Free Response

Directions: For questions 1, 2, and 4 you must write and solve an equation. For question 3 you have to also graph your solution.

The coach for a basketball team wants to buy new shoes for her 12 players.

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?

Show your work.

Members of a baseball team raised \$967.50 to go to a tournament. They rented a bus for \$450.00 and budgeted \$28.75 per player for meals. They will spend all the money they raised.

Write and solve an equation that models this situation and could be used to determine the number of players, p , the team could bring to the tournament.

Show your work.

Harper has \$15.00 to spend at the grocery store. She is going to buy bags of fruit that cost \$4.75 each and one box of crackers that costs \$3.50.

Write and solve an inequality that models this situation and could be used to determine the maximum number of bags of fruit, b , Harper can buy.

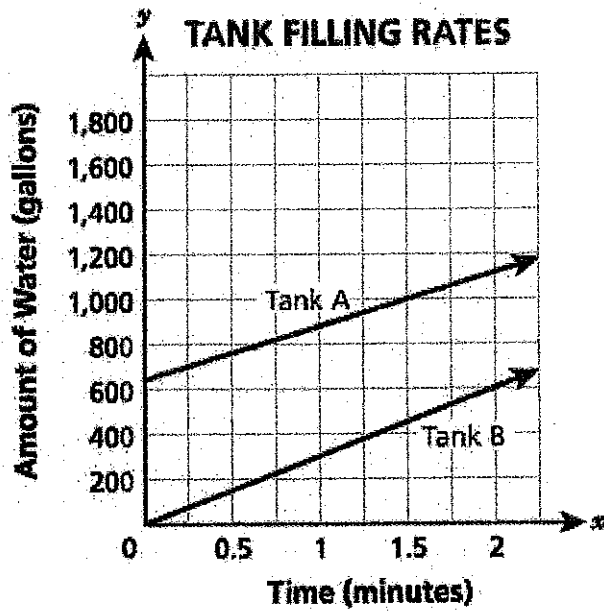
Show your work.

Ms. Hernandez has \$100 to spend on parking and admission to the zoo. The parking will cost \$7, and admission tickets will cost \$15.50 per person, including tax. Write and solve an equation that can be used to determine the number of people that she can bring to the zoo, including herself.

Show your work.

A contractor is building the base of a circular fountain. On the blueprint, the base of the fountain has a diameter of 18 centimeters. The blueprint has a scale of three centimeters to four feet. What will be the actual area of the base of the fountain, in square feet, after it is built? Round your answer to the nearest tenth of a square foot.

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.

