

QUESTION 2



The solution to the inequality

$$x - 1000 \leq 250$$

is $x \leq 1250$ ✓

and the solution of

$$x - 1000 \geq -250$$

is $x \geq 750$ ✓

Nada is planning her party and estimates that she needs AED 1000 plus or minus at most AED 250.

The absolute value inequality to find the range between the maximum and minimum amount

of money that she may need is $|x - 1000| \leq 250$ ✓

The maximum amount is 1250 ✓

The minimum amount is 750 ✓

Nada bought 40 hats for AED 5 each, 100 balloons for AED 3 each, a cake for AED 175, and AED 300 for new clothes.

The total amount of money paid by Nada is AED 975 ✓



$$x \leq 250$$

$$|x - 1000| \geq 250$$

500

250

$$x \geq 250$$

1000

$$|x - 250| \leq 1000$$

QUESTION 3



What is the extraneous solution for this equation?

$$|5x - 12| = 7x$$

The extraneous solution is

$x =$

-6



QUESTION 4



Which of these numbers are rational?



$$\frac{3.5}{6}$$



-5



$$\sqrt{2}$$



7. 3890560 ...



$$\frac{23}{\pi}$$



$$\sqrt{25}$$



QUESTION 6



Drag and drop the answers into the boxes to correctly complete the sentences.

The multiplicative inverse of

$$\frac{\sqrt{2}}{2}$$

is

$$\sqrt{2}$$



The additive inverse of

$$-1\frac{5}{7}$$

is

$$\frac{12}{7}$$



The

multiplicative



inverse of

$$-3.8$$

is

$$-\frac{5}{19}$$

The

additive



inverse of

$$-3.8$$

is

$$3.8$$

division

$$\frac{-\sqrt{2}}{2}$$

$1\frac{7}{5}$

subtraction

$$\frac{-2}{\sqrt{2}}$$

QUESTION 8

What is the solution to this equation?

$$7(8 - 5n) + (-1)(n + 14) = 3(2n - 13)$$

Select your answer from the drop-down menu.

The solution is $n =$

$$\frac{27}{14}$$



QUESTION 10

Use set-builder notation to write the solutions of the inequalities and state the property used to solve them.

$$6x - 5 \leq 5x + 2$$

Drag and drop your answers into the boxes to correctly complete the sentences.

Steps	Reason
$6x - 5 \leq 5x + 2$	Given
$6x - 5 + 5 \leq 5x + 2 + 5$	

	Addition Property of Inequality ✓
$6x \leq 5x + 7$ ✓	Simplify
$6x - 5x \leq 5x + 7 - 5x$	Subtraction Property of Inequality ✓
$x \leq 7$ ✓	Simplify ✓

$x \geq 7$

$x \leq -7$

Multiplication Property

Division Property

QUESTION 12



If

$a = -2$

and

$b = 3$

, which of the expressions have the value 5?



$-3 - |a - 2b|$



$|a - b|$





$|2a - b| - 2$



$|-a - b|$



$|a + b|$



$|a - b| + 10$

QUESTION 14



Solve the given absolute value equation.

$|2x - 7| - 6 = 5$

Which statement is true?



The solution for this equation is

$x = 2$

.



The solutions for this equation are

$x = -2$

and

$x = 9$

.



The only solution for this equation is

$x = 9$

☐

The solution set for this equation is

$\emptyset$

because it has no solution.

QUESTION 16



Solve

$$3|-5x + 2| + 5 \leq 14$$

.

Drag and drop the answer into the box.

The solution to this inequality is

$\left[-\frac{1}{5}, 1\right]$

$\left(-\frac{1}{5}, 5\right)$

$\left(\frac{1}{5}, 1\right)$

$\left[-1, \frac{1}{5}\right]$

QUESTION 18



Which equations have the solution

$$x = -4$$

?



$$5x - 8 = 12$$



$$5x + 8 = -12$$



$$-5x - 8 = 12$$



$$-5x + 8 = -12$$



$$-5x + 8 = 12$$



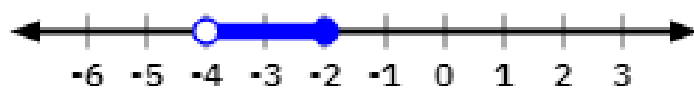
$$5x + 8 = 12$$

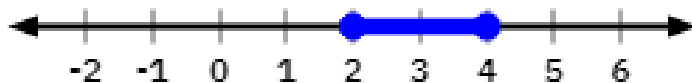
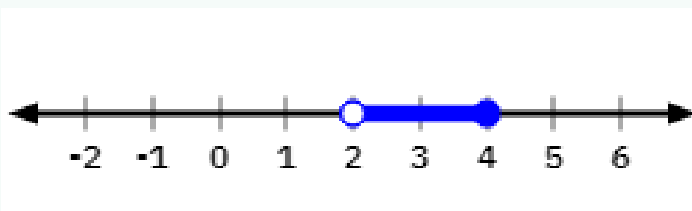
QUESTION 20



Select the graph that represents the solution to the inequality.

$$-1 < x - 3 \leq 1$$





QUESTION 22



Simplify this expression.

$$-2(a + b) + 10(2a - b)$$

Drag and drop the correct answer into the box.

This expression in simplified form is

$18a - 12b$



$18a - 8b$

$10a - 3b$

$18a - 9b$

$3x - 5$ $\geq x - 7$ ✓ ✗

Khalid and Fahed each have to hike for more than


$$|-2x + 3| + 2x = 1 + 5x$$

Khalid said that a solution for this equation is

$$\frac{2}{5}$$

. Fahed said that a solution for this equation is

$$-4$$

Answer the following with a T if the statement is true and an F if it is false:

Neither one has a correct solution

F



Both of them have a correct solution

T



QUESTION 29



The angular frequency of a physical pendulum in radians per second can be found using the formula

$$\omega = \sqrt{\frac{mgl}{I}}$$

where

l

is the length of the pendulum in meters,

I

is the moment of inertia,

m

is the mass of the ball, and

g

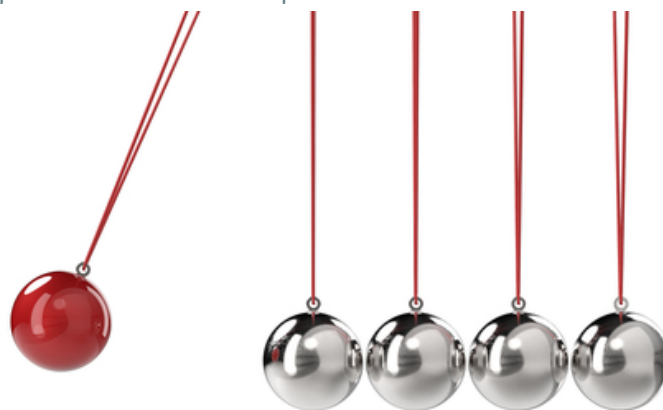
is the force of acceleration due to gravity.

If

$$g = 9.8 \text{ m/s}^2$$

, what is the length formula of a pendulum?

Find this length when



$$m = 2$$

kg,

$$l = 10$$

kg.m², and

$$\omega = 0.7 \text{ radians / s}$$

.

The length formula is

$$l = \frac{\omega^2 l}{m g}$$

and

$$l = 0.5 \text{ m}$$

.

The length formula is

$$l = \frac{\omega l}{m g}$$

and

$$l = 0.35 \text{ m}$$

.

The length formula is

$$l = \frac{\omega^2 l}{m g}$$

and

$$l = 0.25 \text{ m}$$

.



The length formula is

$$l = \sqrt{\frac{\omega^2 l}{m g}}$$

.

$$l = 0.2 \text{ m}$$

$$(25 \cdot (39 + 8)) \cdot 4$$

Expression	Property
$(25 \cdot (39 + 8)) \cdot 4$	Given
$4 \cdot (25 \cdot (39 + 8))$	Commutative Property of Multiplication. ✓
$(4 \cdot 25) \cdot (39 + 8)$	Associative Property of Multiplication. ✓
<div>100 ✓</div> $\cdot (39 + 8)$	
$100 \cdot 39 + 100 \cdot 8$	Distributive Property ✓
$3900 + 800 = 4700$	

Associative Property of Addition.

Commutative Property of Addition.

QUESTION 34

A company selling electronic devices obtains a profit between AED 500 and AED 750 boxes per day. Write an absolute value equation in the form

$$|x - c| = r$$

to represent the maximum and the minimum profit obtained in a day.

Enter your answer in the space provided.

The absolute value equation is

$$|x - 625| = 125$$



QUESTION 35

If

$$b = -2$$

, then the value of the expression

$$2 - (3b + 1)(-b + 2)$$

is

22



QUESTION 37

The surface area of a cone can be found with the formula

$$SA = \pi r(\sqrt{h^2 + r^2} + r)$$

The variable

$$r = 3 \text{ cm}$$

is the radius of the circle, and

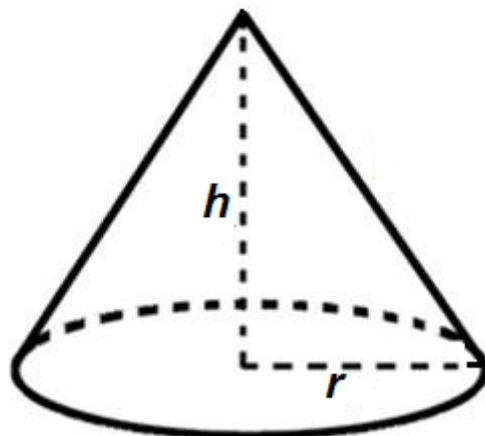
$$h = 6 \text{ cm}$$

is the height.

Use 3.14 for

π

. Round your answer to the nearest hundreds.



What is the surface area of this cone?

☒ 91.45 cm^2



☐ 68.23 cm^2

☐ 113.04 cm^2

☐ 65.26 cm^2

QUESTION 39



The formula

$$V = \pi(rh^2 - \frac{1}{3}h^3)$$

can be used to find the volume of water filled in a spherical tank.

The variable

V

is the volume of the filled water,

h

is the height of water in the tank, and

r

is the radius of the spherical tank.

The radius of each tank is 120 cm. Tank A is filled with water to a height of 30 cm.

Use 3.14 for

π

and round to the nearest whole number if necessary.

The volume of filled water in tank A is  cm^3 .

The volume of water filled in tank B is three halves the volume of tank A.

The volume of water in tank B is  cm^3 .

The volume of water filled in the rest of the tanks (C, D, E, and F) is two times that of A and B.

The total volume in all tanks is  cm^3 .



432,213

2,020,590

22513.8

330,120

QUESTION 41



For an educational plan, Rashed joins a saving plan in which he aims to have AED 400,000 at the end of five years at an annual interest rate of 10%. The total amount of money obtained

after n years in this plan is given by the formula

$$F_n = P \frac{(1+i)^n - 1}{i}$$

, where

F_n

is the future value or the amount at the time of the n^{th} payment, n is the number of periods, i is the interest rate per period, and P is the periodic payment.

What is the formula for P that Rashed will find first and what is his yearly payment? Round your answer to the nearest whole number.



$$P = \frac{i F_n}{(1+i)^n - 1}$$

and Rashid's yearly payment is AED 8889.



$$P = \frac{i F_n}{(1+i)^n - 1}$$

and Rashed's yearly payment is AED 65519. ✓



$$P = \frac{(1+i)^n - 1}{i F_n}$$

and Rashid's yearly payment is AED 80,000.



$$P = \frac{i F_n + 1}{(1+i)^n}$$

and Rashid's yearly payment is AED 24,837.

The figure shown represents a cone and hemisphere.
The volume of the shown figure can be found by the formula

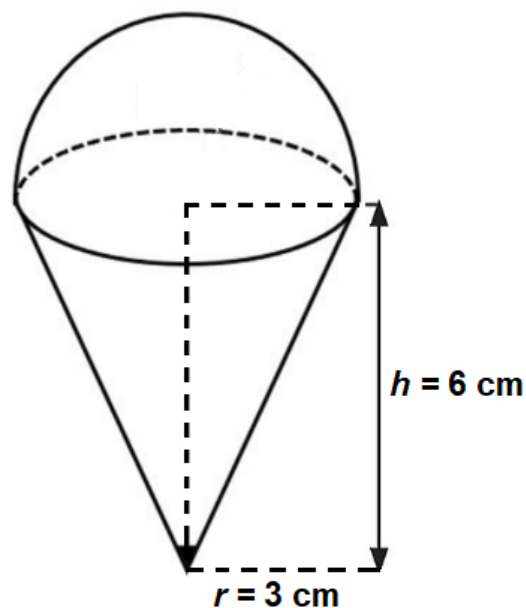
$$V = \frac{1}{3} \pi r^2 (2r + h)$$

, where the radius is
 r
and the height is
 h

The volume of this figure is

36 π ✓ ▼

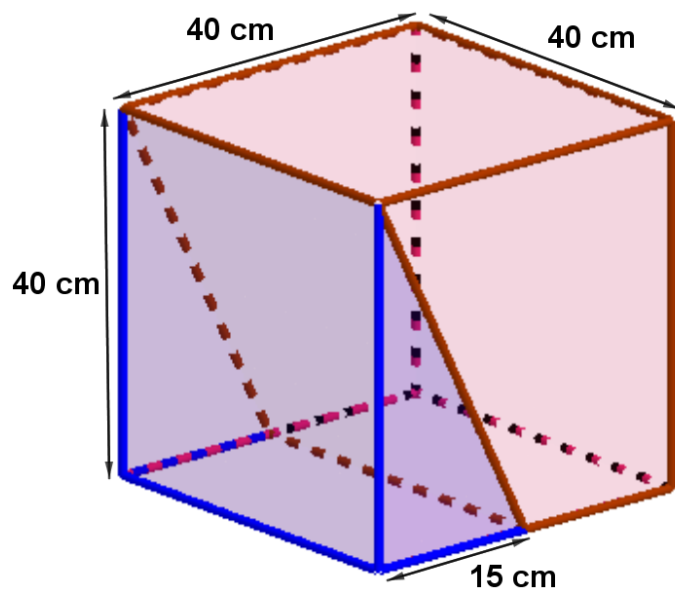
cm³



QUESTION 47

A box in the shape of a cube is cut along one of its edges to obtain a triangular blue prism as shown.

What is the volume of the remaining brown piece of the cube?



52,000 cm³



- ☐ 64000 cm⁵
- ☐ 240000 cm³
- ☐ 16000 cm³

QUESTION 49



Samir estimates that his cylindrical jar contains 120 marbles with 15 marbles more or less. The absolute value equation that gives the greatest and least number of marbles is

$|x - 120| = 15$ ✓ ▼

The greatest number of marbles is 135 ✓ ▼

The least number of marbles is 105 ✓ ▼

To paint his cylindrical jar, Samir used the formula of the surface area of the cylinder which is

$$SA = 2\pi rl + 2\pi r^2$$

. Given that

$$r = 6 \text{ cm}$$

and

$$l = 10 \text{ cm}$$

, the amount of paint needed is 602.88 ✓ ▼ cm². Use

$$\pi = 3.14$$

.

QUESTION 51



What is the sum of the product of three fourths and the square of a number and the additive inverse of seven?

☐ $3(4)x^2 + 7$

☒ $\frac{3}{4}x^2 + (-7)$



☐ $\frac{3}{4}x^2 + 7$

☐ $\frac{3}{4}(x - 7)^2$

QUESTION 53



The formula

$$V = 2\pi^2 r^2 R$$

can be used to find the volume of doughnuts in the shape of a torus.

When

$$R = 4$$

cm and

$$V = 2\pi^2$$

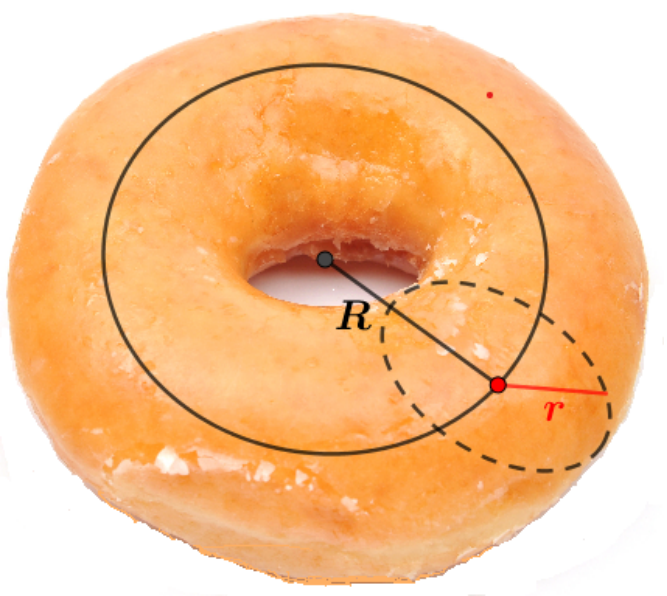
, the value of
 $r =$

$\frac{1}{2}$

✓ ▼

cm.

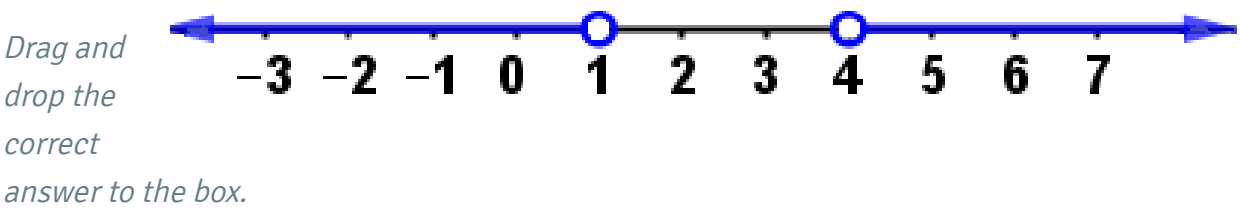
Ahmad is trying to choose between doughnut offers from two different patisseries. Offer A costs AED 5 for a doughnut with an extra charge of AED 2 for each additional topping. Offer B costs AED 8 for a doughnut with an extra charge of AED 0.5 for each additional topping. How many additional toppings would Ahmad have to ask for to make Offer B less expensive than Offer A?



Offer B is less expensive than Offer A if Ahmad asks for at least additional toppings.

QUESTION 55

Which inequality has the blue solution shown in the graph?



The inequality is

- $|2x - 5| \geq 3$
- $|2x - 5| < 3$
- $|2x - 5| \leq 3$

QUESTION 56



Solve

$$|5p - 2| \leq 8$$

.

Complete the solution to this absolute value inequality.

Enter your answers in the spaces provided.

$$|5p - 2| \leq 8$$

$$-8$$

$$\leq 5p - 2 \leq 8$$

$$-8$$

+

2



$$\leq 5p - 2 + 2 \leq 8 +$$

2



$$-6 \leq 5p \leq$$

10



-1.2



$$\leq p \leq$$

2



QUESTION 58



What is the value of this expression?

$$21(119 + 9 \cdot 9 + 8) - 206(7 \cdot 5 - 2 \cdot 7)$$

Enter your answer in the space provided.

The value is

42

