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QUESTION 1

A rectangular store has a volume of 480 cubic meters. The height is 3 meters less than the width, and the length is 4 meters more than the width. What is the length of the store?

- 11 meters
- 12 meters ✓
- 4 meters
- 5 meters

QUESTION 2

A small rectangular box containing a print cartridge has a width of $x + 2$ centimeters, a height of x centimeters, and a length of $x + 5$ centimeters. If the volume of the box is 120 cubic centimeters, what are the dimensions of the box?

- height: 4 centimeters

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width: 6 centimeters
length: 5 centimeters

height: 3 centimeters
width: 5 centimeters
length: 8 centimeters

height: 6 centimeters
width: 4 centimeters
length: 5 centimeters

height: 5 centimeters
width: 3 centimeters
length: 8 centimeters

QUESTION 3

The square base area of a tower is
$(x^2 + 16x + 64)$
meters. Its height is
$(x + 2)$
meters and the volume of the tower is 3888 cubic meters. Find the height of the tower.

Select your answer from the drop-down menu.

The height of the tower is 12 meters.

QUESTION 4

The square base area of a water tank is
$(x^2 + 2x + 1)$
square meters. Its height is
$(x - 2)$
meters and the volume of the tank is 50 cubic meters. Find the height of the water tank.

Select your answer from the drop-down menu.

The height of the water tank is 2 meters.

QUESTION 5

A tram car has a width of
$(x - 2)$
meters, a height of
x
meters, and a length of
$(x + 6)$
meters. If the volume of the tram car is 80 cubic meters, calculate the dimensions of the tram car.

Select your answers from the drop-down menus.

The dimensions of the tram car are height: 4 meters, width: 2 meters,

and length: 10 meters.

QUESTION 6

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The square base area of a small juice box is $(x^2 + 6x + 9)$ centimeters. Its height is $(x + 4)$ centimeters and the volume of the box is 150 cubic centimeters. What is the height of this juice box?

- (●) 6 centimeters ✓
- ( ) 2 centimeters
- ( ) 4 centimeters
- ( ) 7 centimeters

QUESTION 7

A rectangular storage locker has a volume of 160 cubic meters. The length of the storage locker is 3 meters longer than its height, and its width is 1 meter less than the height. Find the width of the storage locker.

Select your answer from the drop-down menu.

The width of the storage locker is [4 ✓] meters.

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QUESTION 8

Ibrahim designed a rectangular tea tin that has a volume of 24 cubic centimeters. The length of the tea tin is 5 centimeters longer than its height, and its width is 2 centimeters less than the height. Find the length of the tea tin.

Select your answer from the drop-down menu.

The length of the tea tin is 8 centimeters.

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QUESTION 9

A small rectangular building has a width of
$(x + 2)$
meters, a height of
x
meters, and a length of
$(x + 7)$
meters. If the volume of the building is 420 cubic meters, calculate the dimensions of the building.

Select your answers from the drop-down menus.
The dimensions of the building are:

width: 7 meters

height: 5 meters

length: 12 meters

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QUESTION 10

A rectangular room, being used as an office, has a width of
$(x + 1)$
meters, a height of
x
meters, and a length of
$(x + 2)$
meters. If the volume of the office is 120 cubic meters, calculate the dimensions of the office.
Enter your answers in the spaces provided.
The dimensions of the office are:

width: 5 ✓ meters

height: 4 ✓ meters

length: 6 ✓ meters

QUESTION 11

A rectangular train car has a volume of 200 cubic meters. The length of the train car is 6 meters longer than its height and its width is 1 meter more than the height. Find the length of the train car.

The length of the train car is 10 ✓ meters.

QUESTION 12

A swimming pool has a width of

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x

meters, a height of

$(x-2)$

meters, and a length of

$(x+3)$

meters. If the volume of the pool is 56 cubic meters, calculate the dimensions of the pool.

Enter your answers in the spaces provided.

The dimensions of the pool are:

width 4 ✓ meters, height

2 ✓ meters, and length

7 ✓ meters.

QUESTION 13

A small rectangular tin has a volume of 120 cubic centimeters. The height is 2 centimeters less than the width and the length is 3 centimeters more than the width. What is the height of the tin?

Enter your answer in the space provided.

The height of the tin is 3 ✓ centimeters.

QUESTION 14

The square base area of an elevator shaft is

x^2-4x+4

meters. Its height is

$x+3$

meters and the volume of the elevator shaft is 28 cubic meters . Find the height of the elevator shaft.

Enter your answer in the space provided.

The height is 7 ✓ meters.

QUESTION 15

The circular base area of a swimming pool is

$x^2 + 8x + 16$

meters. Its height is

$x - 3$

meters and the volume of the pool is 300 cubic meters. Find the height of the pool.

Enter your answer in the space below.

The height of the pool is 3 ✓ meters.

QUESTION 16

Given the possible zeros of the function

$f(x) = x^3 - 6x^2 + 11x - 6$

as

$\pm 1, \pm 2, \pm 3, \pm 6$

, use the table shown to find the real zeros of the function.

$\frac{p}{q}$	1	−6	11
1	1	−5	6
−1	1	−7	18
2	1	−4	3

Select your answer from the drop-down menu.

The zeros of this function are

$x =$

1, 2, 3 ✓ .

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−2	1	−8	27
3	1	−3	2
−3	1	−9	38

QUESTION 17

Find all the zeros of the polynomial function

$f(x) = 4x^4 - 7x^3 - 19x^2 + 7x + 15$

.

Select your answers from the drop-down menus.

The zeros of the function are at $x = -\frac{5}{4}$ ✓, $x = -1$, $x = 1$ ✓, and $x = 3$.

QUESTION 18

Find all the zeros of the polynomial function

$f(x) = 3x^4 + 2x^3 - 17x^2 - 8x + 20$

.

Select your answers from the drop-down menus.

The zeros of the function are at

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$x = -2$

,

$x =$

$-\frac{5}{3}$ ✓ ,

$x = 1$

, and

$x =$

2 ✓ .

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QUESTION 19

Given the possible zeros of the function

$f(x) = x^3 + 5x^2 + 2x - 8$

as

$\pm 1, \pm 2, \pm 4, \pm 8$

, use the table shown to find the real zeros of the function.

$\frac{p}{q}$	1	5	2
1	1	6	8
−1	1	4	−2
2	1	7	16
−2	1	3	−4
4	1	9	38
−4	1	1	−2
8	1	13	106
−8	1	−3	26

Select your answer from the drop-down menu.

The zeros of this function are

$x =$

$-4, -2, 1$ ✓ .

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QUESTION 20

Find all the zeros of the polynomial function

$f(x) = 3x^4 + 5x^3 - 29x^2 - 45x + 18$

, given that

$x = \frac{1}{3}$

is a zero.

Select all that apply.

- [ ] $x = 2$
- [x] $x = 3$ ✓
- [ ] $x = 1$
- [ ] $x = -1$
- [ ] $x = \frac{2}{3}$
- [ ] $x = -\frac{1}{3}$
- [x] $x = -3$ ✓
- [x] $x = -2$ ✓

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QUESTION 21

Find all the zeros of the polynomial function

$f(x) = 2x^4 + 3x^3 + 48x^2 + 75x - 50$

.

Select your answers from the drop-down menus.

The zeros of the function are at $x = \frac{1}{2}$ ✓, $x = -2$ ✓, $x = 5i$ ✓, and $x = -5i$

.

QUESTION 22

Find all the zeros of the polynomial function

$f(x) = 2x^4 + 5x^3 + 15x^2 + 45x - 27$

.

Select your answers from the drop-down menus.

The zeros of the function are at $x = \frac{1}{2}$ ✓, $x = -3$ ✓, $x = -3i$ ✓, and

$x = 3i$

.

QUESTION 23

Given the possible zeros of the function

$f(x) = x^3 - 3x^2 - 10x + 24$

as

$\pm 1, \pm 2, \pm 3, \pm 4, \pm 6, \pm 8, \pm 12, \pm 24$

, use the table shown to find the real zeros of the function.

Select all that apply.

$\frac{p}{q}$	1	−3	
4	1	1	
−4	1	−7	
3	1	0	
−3	1	−6	
2	1	−1	
−2	1	−5	
1	1	−2	
−1	1	−4	

- [x] $x = 4$
- [ ] $x = 3$

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- [ ] $x = -2$
- [ ] $x = -4$
- [x] $x = 2$ ✓
- [ ] $x = 1$
- [ ] $x = -1$
- [x] $x = -3$ ✓

QUESTION 24

What are all the zeros of the polynomial function

$f(x) = 3x^4 + 2x^3 + 47x^2 + 32x - 16$

?

- (•) $x = -1$, $x = \frac{1}{3}$, $x = -4i$, $x = 4i$. ✓

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$x = -1$, $x = -\frac{1}{3}$, $x = -4i$, $x = 4i$.

$x = 1$, $x = \frac{1}{3}$, $x = -4i$, $x = 4i$.

$x = -1$, $x = \frac{2}{3}$, $x = -4i$, $x = 4i$.

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Find all the zeros of the polynomial function

$f(x) = 2x^4 - 3x^3 - 20x^2 + 27x + 18$

, given that

$x = 2$

is a zero.

- $x = -2, -\frac{1}{2}, 2,$ and 3
- $x = -3, \frac{1}{2}, 2,$ and 3
- $x = -3, -2, -\frac{1}{2},$ and 3
- ◉ $x = -3, -\frac{1}{2}, 2,$ and 3 ✓

QUESTION 26

What are all the zeros of the polynomial function

$f(x) = 6x^4 - 31x^3 - 24x^2 - 31x - 30$

?

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$x = -\frac{1}{6},\ x = 1,\ x = -i,\ x = i$

$x = -\frac{1}{6},\ x = 6,\ x = -i,\ x = i$

$x = -\frac{5}{6},\ x = 6,\ x = -i,\ x = i$ ✓

$x = -6,\ x = \frac{5}{6},\ x = -i,\ x = i$

QUESTION 27

What are all the zeros of the polynomial function

$f(x) = 4x^4 - 19x^3 + 11x^2 - 76x - 20$

?

$x = -\frac{1}{4}$

,

$x = 5$

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$x = -2i$

,

$x = 2i$

$x = -\frac{1}{2}$

,

$x = 5$

,

$x = -2i$

,

$x = 2i$

$x = -5$

,

$x = -\frac{1}{4}$

,

$x = -2i$

,

$x = 2i$

$x = -5$

,

$x = \frac{1}{2}$

,

$x = -2i$

,

$x = 2i$

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QUESTION 28

What are all the zeros of the polynomial function

$f(x) = 3x^4 - 16x^3 - 7x^2 + 64x - 20$

given that one zero is

$x = 5$

?

- $x = -\frac{2}{3}$, $x = \frac{2}{3}$, $x = 2$
- $x = \frac{1}{3}$, $x = -2$, $x = 2$ ✓
- $x = -2$, $x = -\frac{1}{3}$, $x = 2$

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$x = \frac{2}{3}$

,

$x = -2$

,

$x = 2$

QUESTION 29

Given the possible zeros of the function

$f(x) = x^3 + 2x^2 - x - 2$

as

$\pm 1, \pm 2$

, use the table shown to find the real zeros of the function.

What are the real zeros of this function?

$\frac{p}{q}$	1	2
1	1	3
−1	1	1
2	1	4
−2	1	0

$x = -2, -1$

$x = -2, -1, 2$

$x = -2, -1, 1$

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- $x = -1, 1$

QUESTION 30

Given the possible zeros of the function

$f(x) = x^3 - 4x^2 + x + 6$

as

$\pm 1, \pm 2, \pm 3, \pm 6$

, use the table shown to find the real zeros of the function.

$\frac{p}{q}$	1	-4	1
1	1	-3	−2
−1	1	-5	6
2	1	-2	−3
−2	1	-6	13
3	1	-1	−2
−3	1	-7	22

- $x = 1, 2, 3$
- $x = -3, -2, -1$
- $x = -3, 1, 2$

$x = -1, 2, 3$

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