A picture containing funnel chart

Description automatically generated

Icon

Description automatically generated with medium confidence

## Problem 1

Simplify completely: 7*x* – 2*x*2 – *x*

1. 6*x*2 – 2*x*
2. 4*x*
3. 6*x* – 2*x*2
4. 2*x*2 + 6*x*
5. 8*x* – 2*x*2

**Your answer:**

**Your solution process (optional):**

## Problem 2

Durga is on a hot air balloon secured to a rope staked to the ground. The rope is taut, and the balloon is hovering directly over Mairéad. If Mairéad is 40 m from the place where the rope is staked down, and the balloon is 45 m in the air, how long is the rope?

1. 20 m
2. 40 m
3. 5√(145) m
4. 59 m

**Your answer:**

**Your solution process (optional):**

## Problem 3

The greatest common factor of 22004 and 22005 is

1. 1
2. 2
3. 22004
4. 22005
5. 22009

**Your answer:**

**Your solution process (optional):**

## Problem 4

Multiply and simplify completely: (*a* – *b*)2

1. *a*2 + 2*ab* + *b*2
2. *a*2 + *b*2
3. *a*2 – *b*2
4. *a*2 – 2*ab* + *b*2
5. *a*2*b*2

**Your answer:**

**Your solution process (optional):**

## Problem 5

Simplify the fraction:

Diagram

Description automatically generated

1. 36
2. 36/*x*
3. *x*/36
4. 1
5. 3*x*/4

**Your answer:**

**Your solution process (optional):**

## Problem 6

Perform the indicated operations:

[(8*x*8 + 8) – (12*x*7 + 7*x*2)] – [(4*x*8 – 7*x*4 + 7*x*) + (7*x* + 11)(7*x* – 1)]

1. 4*x*8 + 12*x*7 – 7*x*4 – 56*x*2 – 77*x* + 19
2. 4*x*8 – 12*x*7 + 7*x*4 – 56*x*2 – 77*x* + 19
3. 4*x*8 – 12*x*7 + 7*x*4 + 56*x*2 + 4*x* + 19
4. -4*x*8 + 12*x*7 – 7*x*4 – 14*x*2 – 4*x* + 19
5. -4*x*8 + 12*x*7 + 7*x*4 – 56*x*2 – 11*x* + 19

**Your answer:**

**Your solution process (optional):**

## Problem 7

The sum of the lengths of the edges of a cube is *L*. Find the volume of this cube.

1. *L*3/4096
2. *L*3/1728
3. *L*3/512
4. *L*3/27
5. *L*3/3

**Your answer:**

**Your solution process (optional):**

## Problem 8

Find the slopes of the lines that are parallel and perpendicular to the line through the pair of points: (-3, 4) and (-2, -4)

1. Parallel: -1/8; perpendicular: 8
2. Parallel: 8; perpendicular: -1/8
3. Parallel: 1/8; perpendicular: -1/8
4. Parallel: -8; perpendicular: 1/8
5. Parallel: -8; perpendicular: 8

**Your answer:**

**Your solution process (optional):**

## Problem 9

Solve the system of equations.

6*y* + 2*x* + 2 = 0

2*y* + 6*x* = 10

1. No solution
2. Infinitely many solutions
3. (-1, 2)
4. (2, -1)

**Your answer:**

**Your solution process (optional):**

A picture containing text, clock

Description automatically generated

## Problem 1

Find the measure of ∠6, ∠4, and ∠7.

Diagram

Description automatically generated with low confidence

**Your answer:**

**Your solution process (optional):**

## Problem 2

Find the measure of ∠2.

Diagram, schematic

Description automatically generated

**Your answer:**

**Your solution process (optional):**

## Problem 3

Find the measure of ∠1.

A picture containing text, gauge, device

Description automatically generated

**Your answer:**

**Your solution process (optional):**

## Problem 4

Table

Description automatically generated

**Your answer:**

**Your solution process (optional):**

## Problem 5

Chart

Description automatically generated with medium confidence

**Your answer:**

**Your solution process (optional):**

## Problem 6

Is this set of numbers a Pythagorean triple?

4, 5, 6

**Your answer:**

**Your solution process (optional):**

## Problem 7

Find the sine, cosine, and tangent of ∠*A*.

Diagram

Description automatically generated with medium confidence

**Your answer:**

**Your solution process (optional):**

## Problem 8

Solve for *x*.

A picture containing text, device, gauge

Description automatically generated

**Your answer:**

**Your solution process (optional):**

Icon

Description automatically generated with medium confidence

## Problem 1

Fill in the blanks. Choices: = , <, or >

1. 5 + 2*x* \_\_ 4 if *x* = ½
2. 18*x*2 – 30 \_\_ 42 if *x* = 2
3. 999,999,999*x* – 1,000,000*x* \_\_ 1 if *x* = 0

**Your answer:**

**Your solution process (optional):**

## Problem 2

Aynsley is doing some math problems from her Algebra 2 textbook and wants to know when she’ll ever be done! She has a total of 70 questions to do, and she works at a rate of 3 questions per minute for the first ten minutes…but then she gets tired and her rate drops to only 2 questions per minute. Will 25 minutes be enough time for her to finish all her questions?

**Your answer:**

**Your solution process (optional):**

## Problem 3

Solve the equation for the given variable:

A picture containing text

Description automatically generated

**Your answer:**

**Your solution process (optional):**

## Problem 4

What are the roots of the following equation?

*f*(*x*) = *x*2 – 2*x* + 17

**Your answer:**

**Your solution process (optional):**

## Problem 5

Math the image to its corresponding conic section—and for bonus points, give its general equation, too! (Assume the image’s center/vertex is the origin.)

A picture containing graphical user interface

Description automatically generated

**Your answer:**

**Your solution process (optional):**

Chart

Description automatically generated

## Problem 1

What is the *x*-value of 180 degrees on the unit circle?

**Your answer:** -1

**Your solution process (optional):**

cos(180˚) = cos(π) = -1

## Problem 2

What are the solutions to *x*2 + 6*x* + 9?

**Your answer:** *x* = -3

**Your solution process (optional):**

*x*2 + 6*x* + 9 = (*x* + 3)2

*x* = -3

## Problem 3

What is the **7th** term in this sequence?

1, 3, 9, 27, …

**Your answer:** 729

**Your solution process (optional):**

27(3) = 81

81(3) = 243

243(3) = 729

## Problem 4

What is the magnitude of the vector <3, 4>?

**Your answer:** 5

**Your solution process (optional):**

√(32 + 42) = √(9 + 16) = √25 = 5

## Problem 5

Write *x*(*t*) = *t*2 and *y*(*t*) = -2*t* in the form *y*(*x*).

**Your answer:** *y* = -2√*x*

**Your solution process (optional):**

*t* = √*x*

*y* = -2(√*x*) = -2√*x*

## Problem 6

Which is instant rate of change? Which is average rate of change?

1. The speed of a car at 3 seconds is 60 miles per second.
2. The average speed of a car over 5 seconds passed is 50 miles per second.
3. The amount of water being dumped from a cup is 5 gallons per second at 6 seconds.

**Your answer:**

**Your solution process (optional):**

Funnel chart

Description automatically generated with medium confidence