

PERT Math Workbook

**Math Exercises, Tutorials and
Multiple Choice Strategies**



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Complete Test Preparation is committed to providing students with the best study materials and practice tests available on the market. Members of our team combine years of teaching experience, with experienced writers and editors, all with advanced degrees.

Feedback

We welcome your feedback. Email us at feedback@test-preparation.ca with your comments and suggestions. We carefully review all suggestions and often incorporate reader suggestions into upcoming versions. As a Print on Demand Publisher, we update our products frequently.

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Getting Started

CONGRATULATIONS! By deciding to take the PERT you have taken the first step toward a great future! Of course, there is no point in taking this important examination unless you intend to do your very best to earn the highest grade that you possibly can. That means getting yourself organized and discovering the best approaches, methods and strategies to master the material. Yes, that will require real effort and dedication on your part but if you are willing to focus your energy and devote the study time necessary, before you know it you will be passing the PERT with a great score!

We know that taking on a new endeavor can be a little scary, and it is easy to feel unsure of where to begin. That's where we come in. This workbook is designed to help you improve your test-taking skills, show you a few tricks of the trade and increase both your competency and confidence.

The PERT Exam Math Content

Basic Math

Exponents and Radicals Square
Root

Fractions, Decimals and Percent

Order of Operations

Word Problems

[Full Version](https://www.test-preparation.ca/pert/pert-math/)

<https://www.test-preparation.ca/pert/pert-math/>

Algebra

- Linear equations with 1 and 2 variables
- Solving Quadratics
- Operations with Quadratics
- Binomials and monomials
- Solve Inequalities
- Monomials

Simple Geometry

- Area, Volume and Perimeter
- Slope of a line
- Identify linear equations from a graph
- Calculate perimeter, circumference and volume
- Solve problems using the Pythagorean theorem

The PERT Study Plan

Now that you have made the decision to take the PERT, it is time to get started. Before you do another thing, you will need to figure out a plan of attack. The very best study tip is to start early! The longer the time period you devote to regular study practice, the more likely you will be to retain the material and be able to access it quickly. If you thought that 1×20 is the same as 2×10 , guess what? It really is not, when it comes to study time. Reviewing material for just an hour per day over the course of 20 days is far better than studying for two hours a day for only 10 days. The more often you revisit a particular piece of information, the better you will know it. Not only will your grasp and understanding be better, but your ability to reach into your brain and quickly and efficiently pull out the tidbit you need, will be greatly enhanced as well.

The great Chinese scholar and philosopher Confucius be-

lieved that true knowledge could be defined as knowing both what you know and what you do not know. The first step in preparing for the PERT is to assess your strengths and weaknesses. You may already have an idea of what you know and what you do not know, but evaluating yourself for each of the math areas will clarify the details.

Making a Study Schedule

To make your study time the most productive you will need to develop a study plan. The purpose of the plan is to organize all the bits of pieces of information in such a way that you will not feel overwhelmed. Rome was not built in a day, and learning everything you will need to know to pass the PERT is going to take time, too. Arranging the material you need to learn into manageable chunks is the best way to go. Each study session should make you feel as though you have succeeded in accomplishing your goal, and your goal is simply to learn what you planned to learn during that particular session. Try to organize the content in such a way that each study session builds on previous ones. That way, you will retain the information, be better able to access it, and review the previous bits and pieces at the same time.

Self-assessment

The Best Study Tip! The very best study tip is to start early! The longer you study regularly, the more you will retain and 'learn' the material. Studying for 1 hour per day for 20 days is far better than studying for 2 hours for 10 days.

What don't you know?

The first step is to assess your strengths and weaknesses.

Basic Math

THE BASIC MATH QUESTIONS ASSESSED ON THE PERT COVER THE FOLLOWING AREAS:

- Fractions, Percent and Decimals
- Exponents, Radicals and Square Root
- Order of Operation

Fraction Tips, Tricks and Shortcuts

When you are writing an exam, time is precious, and anything you can do to answer faster is a real advantage. Here are some ideas, shortcuts, tips and tricks that can speed up answering fractions problems.

Remember that a fraction is just a number which names a portion of something. For instance, instead of having a whole pie, a fraction says you have a part of a pie--such as a half of one or a fourth of one.

Two digits make up a fraction. The digit on top is known as the numerator. The digit on the bottom is known as the denominator. To remember which is which, just remember that “denominator” and “down” both start with a “d.” And the “downstairs” number is the denominator. So for instance, in $\frac{1}{2}$, the numerator is the 1 and the denominator (or “downstairs”) number is the 2.

- It's easy to add two fractions if they have the same denominator. Just add

the digits on top, and leave the bottom one the same: $1/10 + 6/10 = 7/10$.

- It's the same with subtracting fractions with the same denominator: $7/10 - 6/10 = 1/10$.
- Adding and subtracting fractions with different denominators is a little more complicated. First, you have to get the problem so that they do have the same denominators. The easiest way to do this is to multiply the denominators: For $2/5 + 1/2$ multiply 5 by 2. Now you have a denominator of 10. But now you have to change the top numbers too. Since you multiplied the 5 in $2/5$ by 2, you also multiply the 2 by 2, to get 4. So the first number is now $4/10$. Since you multiplied the second number times 5, you also multiply its top number by 5, to get a final fraction of $5/10$. Now you can add 4 and 5 together to get a final sum of $9/10$.
- Sometimes you'll be asked to reduce a fraction to its simplest form. This means getting it to where the only common factor of the numerator and denominator is 1. Think of it this way: Numerators and denominators are brothers that must be treated the same. If you do something to one, you must do it to the other, or it's just not fair. For instance, if you divide your numerator by 2, then you should also divide the denominator by the same. Let's take an example: The fraction $2/10$. This is not reduced to its simplest terms because there is a number that will divide evenly into both: the number 2. We want to make it so that the only number that will divide evenly into both is 1. What can we divide into 2 to get 1? The number 2, of course! Now to be "fair," we have to do the same thing to the denominator: Divide 2 into 10 and you get 5. So our new, reduced fraction is $1/5$.

Basic Math Answer Sheet

	A	B	C	D	E		A	B	C	D	E
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	31	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	34	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	35	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	36	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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30	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>						

Basic Math Practice Questions

Fractions, Decimals and Percent

1. $\frac{2}{3} + \frac{5}{12} =$

- a. $\frac{9}{17}$
- b. $\frac{3}{11}$
- c. $\frac{7}{12}$
- d. $1 \frac{1}{12}$

2. $\frac{3}{5} + \frac{7}{10} =$

- a. $1 \frac{1}{10}$
- b. $\frac{7}{10}$
- c. $1 \frac{3}{10}$
- d. $1 \frac{1}{12}$

3. $\frac{4}{5} - \frac{2}{3} =$

- a. $\frac{2}{2}$
- b. $\frac{2}{13}$
- c. 1
- d. $\frac{2}{15}$

4. $\frac{13}{16} - \frac{1}{4} =$

- a. 1
- b. $\frac{12}{12}$
- c. $\frac{9}{16}$
- d. $\frac{7}{16}$

Answer Key

1. D

A common denominator is needed, which both 3 and 12 will divide into. So, $8 + \frac{5}{12} = \frac{13}{12} = 1 \frac{1}{12}$

2. C

A common denominator is needed for 5 and 10.
 $6 + \frac{7}{10} = \frac{13}{10} = 1 \frac{3}{10}$

3. D

A common denominator is needed for 5 and 3.
 $12 - \frac{10}{15} = \frac{2}{15}$

4. C

A common denominator is needed for 16 and 4.
 $13 - \frac{4}{16} = \frac{9}{16}$

Word Problems

MOST STUDENTS FIND WORD PROBLEMS DIFFICULTY SO WE HAVE INCLUDED AN EXTRA CHAPTER WITH A TUTORIAL AND EXTRA PRACTICE.

How to Solve Word Problems

Most students find math word problems difficult. Tackling word problems is much easier if you have a systematic approach which we outline below.

Here is the biggest tip for studying word problems.

Practice regularly and systematically. Sounds simple and easy right? Yes it is, and yes it really does work.

Word problems are a way of thinking and require you to translate a real world problem into mathematical terms.

Some math instructors go so far as to say that learning how to think mathematically is the main reason for teaching word problems.

So what do we mean by Practice regularly and systematically? Studying word problems and math in general requires a logical and mathematical frame of mind. The only way that you can get this is by practicing regularly, which means everyday.

It is critical that you practice word problems

everyday for the 5 days before the exam as a bare minimum.

If you practice and miss a day, you have lost the mathematical frame of mind and the benefit of your previous practice is pretty much gone. Anyone who has done any number of math tests will agree – you have to practice everyday.

Everything is important. The other critical point about word problems is that all the information given in the problem has some purpose. There is no unnecessary information! Word problems are typically around 50 words in 1 to 3 sentences. If the sometimes complicated relationships are to be explained in that short an explanation, every word has to count. Make sure that you use every piece of information.

Here are 9 simple steps to solve word problems.

Step 1 – Read through the problem at least three times. The first reading should be a quick scan, and the next two readings should be done slowly to answer these important questions:

What does the problem ask? (Usually located towards the end of the problem)

What does the problem imply? (This is usually a point you were asked to remember).

Mark all information, and underline all important words or phrases.

Step 2 – Try to make a pictorial representation of the problem such as a circle and an arrow to show travel.

This makes the problem a bit more real and sensible to you.

Answer Sheet

	A	B	C	D	E		A	B	C	D	E
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	21	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	22	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	24	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	25	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>						
8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>						
9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>						

Word Problem Practice Questions

Part 1 - Equation Translation

1. Translate the following into an equation: Five greater than 3 times a number.

- a. $3X + 5$
- b. $5X + 3$
- c. $(5 + 3)X$
- d. $5(3 + X)$

2. Translate the following into an equation: three plus a number times 7 equals 42.

- a. $7(3 + X) = 42$
- b. $3(X + 7) = 42$
- c. $3X + 7 = 42$
- d. $(3 + 7)X = 42$

3. Translate the following into an equation: 2 + a number divided by 7.

- a. $(2 + X)/7$
- b. $(7 + X)/2$
- c. $(2 + 7)/X$
- d. $2/(7 + X)$

Answer Key

Part 1 - Equation Translation

1. A

Five greater than 3 times a number.

$5 + 3$ times a number.

$$3X + 5$$

2. A

Three plus a number times 7 equals 42.

Let X be the number.

$$(3 + X) \text{ times } 7 = 42$$

$$7(3 + X) = 42$$

3. A

2 + a number divided by 7.

$(2 + X)$ divided by 7.

$$(2 + X)/7$$

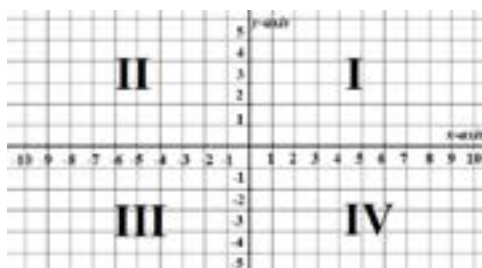
Basic Geometry

THE BASIC GEOMETRY COVERS THE FOLLOWING:

- Calculate perimeter, circumference and volume
- Solve problems using the Pythagorean theorem
- Solve real world problems using the properties of geometric shapes

Cartesian Plane, Coordinate Grid and Plane

To locate points and draw lines and curves, we use the coordinate plane. It is also called Cartesian coordinate plane. It is a two-dimensional surface with a coordinate grid in it, which helps us to count the units. For the counting of those units, we use x-axis (horizontal scale) and y-axis (vertical scale).



The whole system is called a coordinate system which is divided into 4 parts, called quadrants. The quadrant where all numbers are positive is the 1st quadrant (I), and if we go counterclockwise, we mark all 4 quadrants.

The location of a dot in the coordinate system is represented by coordinates. Coordinates are represented as a pair of numbers, where the 1st number is located on the x-axis and the 2nd number is located on the y-axis. So, if a dot A has coordinates a and b, then we write:

$$A=(a,b) \text{ or } A(a,b)$$

The point where x-axis and y-axis intersect is called an origin. The origin is the point from which we measure the distance along the x and y axes.

In the Cartesian coordinate system we can calculate the distance between 2 given points. If we have dots with coordinates:

$$A=(a,b)$$

$$B=(c,d)$$

Then the distance d between A and B can be calculated by the following formula:

$$d = \sqrt{(c-a)^2 + (d-b)^2}$$

Cartesian coordinate system is used for the drawing of 2-dimensional shapes, and is also commonly used for functions.

Example:

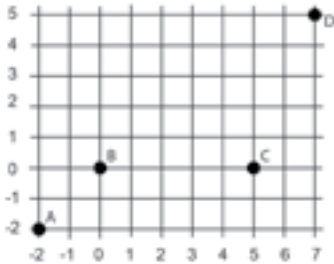
Draw the function $y = (1 - x)/2$

To draw a linear function, we need at least 2 points. If we put that $x=0$ then value for y would be:

Answer Sheet

	A	B	C	D	E		A	B	C	D	E
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	21	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	22	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	23	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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14	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>						
15	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>						
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18	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>						
19	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>						
20	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>						

Geometry Practice Questions



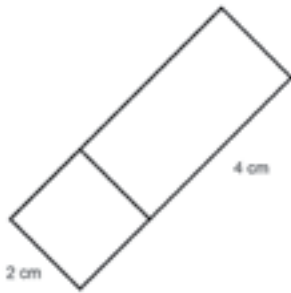
1. Which of the above points represents the origin?

- a. A
- b. B
- c. C
- d. D



2. What is measurement of the indicated angle?

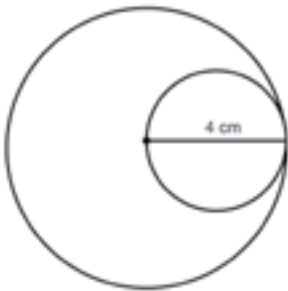
- a. 45°
- b. 90°
- c. 60°
- d. 30°



Note: figure not drawn to scale.

3. Assuming the figure with side 2 cm. is square, what is the perimeter of the above shape?

- a. 12 cm
- b. 16 cm
- c. 6 cm
- d. 20 cm



Note: Figure not drawn to scale

Answer Key

1. A

Point A represents the origin.

2. A

The diagonals of a square intersect at right angles, so each angle measures 90° . Half of that angle will be 45° .

3. B

We see that there is a square with side 2 cm and a rectangle adjacent to it, with one side 2 cm (common side with the square) and the other side 4 cm. The perimeter of a shape is found by summing up all sides surrounding the shape, not adding the ones inside the shape. Three 2 cm sides from the square, and two 4 cm sides and one 2 cm side from the rectangle contribute the perimeter.

So, the perimeter of the shape is: $2 + 2 + 2 + 4 + 2 + 4 = 16$ cm.

4. C

In the figure, we are given a large circle and a small circle inside it; with the diameter equal to the radius of the large one. The diameter of the small circle is 4 cm. This means that its radius is 2 cm. Since the diameter of the small circle is the radius of the large circle, the radius of the large circle is 4 cm. The area of a circle is calculated by: πr^2 where r is the radius.

Area of the small circle: $\pi(2)^2 = 4\pi$

Area of the large circle: $\pi(4)^2 = 16\pi$

The difference area is found by:

Area of the large circle - Area of the small circle = $16\pi - 4\pi = 12\pi$

Algebra

ALGEBRA QUESTIONS ON THE PERT
INCLUDE:

- Linear equations with 1 and 2 variables
- Solving Quadratics
- Operations with Quadratics
- Solve Algebraic Equations
- Monomials

Solving One-Variable Linear Equations

Linear equations with variable x is an equation with the following form:

$$ax = b$$

where a and b are real numbers. If $a=0$ and b is different from 0, then the equation has no solution.

Let's solve one simple example of a linear equation with one variable:

$$4x - 2 = 2x + 6$$

When we are given this type of equation, we are always moving variables to the one side, and real numbers to the other side of the equals sign. Always remember: if you are changing sides, you are changing signs. Let's move all variables to the left, and real number to the right side:

$$4x - 2 = 2x + 6$$

$$4x - 2x = 6 + 2$$

$$2x = 8$$

$$x = 8/2$$

$$x = 4$$

When $2x$ goes to the left it becomes $-2x$, and -2 goes to the right and becomes $+2$. After calculations, we find that x is 4, which is a solution of our linear equation.

Let's solve a little more complex linear equation:

$$2x - 6/4 + 4 = x$$

$$2x - 6 + 16 = 4x$$

$$2x - 4x = -16 + 6$$

$$-2x = -10$$

$$x = -10/-2$$

$$x = 5$$

We multiply whole equation by 4, to lose the fractional line. Now we have a simple linear equation. If we change sides, we change the signs.

Factoring Polynomials

If we have a polynomial that we want to write as multiplication of a real number and a polynomial or as a multiplication of 2 or more polynomials, then we are dealing with factoring polynomials.

Let's see an example for a simple factoring:

$$12x^2 + 6x - 4 =$$

$$2 * 6x^2 + 2 * 3x - 2 * 2 =$$

$$2(6x^2 + 3x - 2)$$

We look at every polynomial member as a product of a

Answer Sheet

	A	B	C	D	E		A	B	C	D	E
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	26	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	29	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	30	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	31	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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19	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	44	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	45	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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23	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	48	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	49	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	50	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Algebra Practice Questions

1. Solve the linear equation: $-x - 7 = -3x - 9$

- a. -1
- b. 0
- c. 1
- d. 2

2. Solve the system: $4x - y = 5$ $x + 2y = 8$

- a. (3,2)
- b. (3,3)
- c. (2,3)
- d. (2,2)

3. Simplify the following expression:

$$3x^3 + 2x^2 + 5x - 7 + 4x^2 - 5x + 2 - 3x^3$$

- a. $6x^2 - 9$
- b. $6x^2 - 5$
- c. $6x^2 - 10x - 5$
- d. $6x^2 + 10x - 9$

4. Find 2 numbers that sum to 21 and the sum of the squares is 261.

- a. 14 and 7
- b. 15 and 6
- c. 16 and 5
- d. 17 and 4

Answer Key

1. A

We should collect similar terms on the same side. Here, we can collect x terms on left side, and the constants on the right side:

$-x - 7 = -3x - 9$ Let us add $3x$ to both sides:

$$-x - 7 + 3x = -3x - 9 + 3x$$

$2x - 7 = -9$... Now, we can add $+7$ to both sides:

$$2x - 7 + 7 = -9 + 7$$

$2x = -2$... Dividing both sides by 2 gives us the value of x :

$$x = -2/2$$

$$x = -1$$

2. C

First, we need to write two equations separately:

$$4x - y = 5 \text{ (I)}$$

$x + 2y = 8$ (II) ... Here, we can use two ways to solve the system. One is substitution method, the other one is linear elimination method:

1. Substitution Method

Equation (I) gives us that $y = 4x - 5$. We insert this value of y into equation (II):

$$x + 2(4x - 5) = 8$$

$$x + 8x - 10 = 8$$

$$9x - 10 = 8$$

$$9x = 18$$

$$x = 2$$

But knowing $x = 2$, we can find the value of y by inserting $x = 2$ into either of the equations. Let us choose equation (I):

$$4(2) - y = 5$$

$$8 - y = 5$$

$$8 - 5 = y$$

$$y = 3 \rightarrow \text{solution is } (2, 3)$$

2. Linear Elimination Method:

2•/ $4x - y = 5$... by multiplying equation (I) by 2, we see that $-2y$ will form; and y terms

$x + 2y = 8$... will be eliminated when summed with $+2y$ in equation (II):

$$2\bullet/ 4x - y = 5$$

$$+ \quad x + 2y = 8$$

$$8x - 2y = 10$$

$$+ \quad x + 2y = 8 \dots \text{Summing side by side:}$$

$$8x + x - 2y + 2y = 10 + 8 \dots -2y \text{ and } +2y \text{ eliminate each other:}$$

$$9x = 18$$

$$x = 2$$

By knowing $x = 2$, we can find the value of y by inserting $x = 2$ into either of the equations. Let us choose equation (I):

$$4(2) - y = 5$$

$$8 - y = 5$$

$$8 - 5 = y$$

$$y = 3 \rightarrow \text{solution is } (2, 3)$$

3. B

$3x^3 + 2x^2 + 5x - 7 + 4x^2 - 5x + 2 - 3x^3 \dots$ write similar terms together:

$= 3x^3 - 3x^3 + 2x^2 + 4x^2 + 5x - 5x - 7 + 2 \dots$ operate within the same terms. $3x^3$ and $-3x^3$, $5x$ and $-5x$ cancel:

$$= 6x^2 - 5$$

4. B

There are two statements made. This means that we can write two equations according to these statements:

The sum of two numbers are 21: $x + y = 21$

The sum of the squares is 261: $x^2 + y^2 = 261$

We are asked to find x and y .

Since we have the sums of the numbers and the sums of their squares; we can use the square formula of $x + y$, that is:

$(x + y)^2 = x^2 + 2xy + y^2 \dots$ Here, we can insert the known values $x + y$ and $x^2 + y^2$:

$(21)^2 = 261 + 2xy \dots$ Arranging to find xy :

$$441 = 261 + 2xy$$

$$441 - 261 = 2xy$$

$$180 = 2xy$$

$$xy = 180/2$$

$$xy = 90$$

We need to find two numbers which multiply to 90. Checking the answer choices, we see that in (b), 15 and 6 are given. $15 \cdot 6 = 90$. Also their squares sum up to 261 ($15^2 + 6^2 = 225 + 36 = 261$). So these two numbers satisfy the equation.

Basic Math Multiple Choice

Math is the one section where you need to make sure that you understand the processes before you ever tackle it. That's because the time allowed on the math portion is typically so short that there's not much room for error. You have to be fast and accurate. It's imperative that before the test day arrives, you've learned all the main formulas that will be used, and then to create your own problems (and solve them).

On the actual test day, use the "Plug-Check-Check" strategy. Here's how it goes.

Read the problem, but not the answers. You'll want to work the problem first and come up with your own answers. If you did the work right, you should find your answer among the options given.

If you need help with the problem, plug actual numbers into the variables given. You'll find it easier to work with numbers than it is to work with letters. For instance, if the question asks, "If $Y-4$ is 2 more than Z , then $Y+5$ is how much more than Z ?" Try selecting a value for Y . Let's take 6. Your question now becomes, "If $6-4$ is 2 more than Z , then 6 plus 5 is how much more than Z ?" Now your answer should be easier to work with.

Check the answer choices to see if your answer matches one of those. If so, select it.

If no answer matches the one you got, re-check your math, but this time, use a different method. In math, it's common for

How to Study for a Math Test

EVERY SUBJECT HAS ITS OWN PARTICULAR STUDY METHOD. Math is mostly numerical, not verbal and requires logical thinking; it has its own way to be studied. Before touching on significant points of studying a math test, let's look at some of the fundamentals of "learning."

Learning is not an instant experience; it is a procedure. Learning is a process not an event. Rome wasn't built in a day, and learning anything (or everything) isn't going to happen in a day either. You cannot expect to learn everything in one day, at night, before the test. It is important and necessary to learn day-by-day. Good time management plays a considerable role in learning. When you manage your time, and begin test preparation well in advance, you will notice the subjects are easier than you thought, or feared, and you will take the test without the stress of a sleepless body and an anxious mind.

Memorizing is a temporary step of learning if information is not comprehended and applied afterwards. Memorize just the basics and understand the meaning; then apply, analyze, synthesize and evaluate.

These are the hierarchical layout of cognitive learning: Of course, there are some basic properties that you need to memorize in the beginning, since you cannot prove the facts every time you solve a math test. For example; the inner angles of a triangle sum up

How to Prepare for a Test

MOST STUDENTS HIDE THEIR HEADS AND PROCRASTINATE WHEN FACED WITH PREPARING FOR AN EXAM, HOPING THAT SOMEHOW THEY WILL BE SPARED THE AGONY, ESPECIALLY IF IT IS A BIG ONE THAT THEIR FUTURES RELY ON. Avoiding a test is what many students do best and unfortunately, they suffer the consequences because of their lack of preparation.

Test preparation requires strategy and dedication. It is the perfect training ground for a professional life. Besides having several reliable strategies, successful students also has a clear goal and know how to accomplish it. These tried and true concepts have worked well and will make your test preparation easier.

The Study Approach

Take responsibility for your own test preparation.

It is a common - but big - mistake to link your studying to someone else's. Study partners are great, but only if they are reliable. It is your job to be prepared for the test, even if a study partner fails you. Do not allow others to distract you from your goals.

Prioritize the time available to study

When do you learn best, early in the day or at night? Does your mind absorb and retain information most efficiently in small blocks of time, or do you require long stretches to get

How to Take a Test

EVERYONE KNOWS THAT TAKING AN EXAM IS STRESSFUL, BUT IT DOES NOT HAVE TO BE THAT BAD! There are a few simple things that you can do to increase your score on any type of test. Take a look at these tips and consider how you can incorporate them into your study time.

OK - so you are in the test room - Here is what to do!

Reading the Instructions

This is the most basic point, but one that, surprisingly, many students ignore and it costs big time! Since reading the instructions is one of the most common, and 100% preventable mistakes, we have a whole section just on reading instructions.

Pay close attention to the sample questions. Almost all standardized tests offer sample questions, paired with their correct solutions. Go through these to make sure that you understand what they mean and how they arrived at the correct answer. Do not be afraid to ask the test supervisor for help with a sample that confuses you, or instructions that you are unsure of.

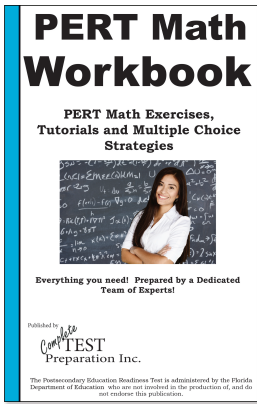
Tips for Reading the Question

We could write pages and pages of tips just on reading the test questions. Here are a few that will help you the most.

- **Think first.** Before you look at the

CONGRATULATIONS! You have made it this far because you have applied yourself diligently to practicing for the exam and no doubt improved your potential score considerably! Passing your up-coming exam is a huge step in a journey that might be challenging at times but will be many times more rewarding and fulfilling. That is why being prepared is so important.

Good Luck!



PERT Math Workbook

Includes over 200 math practice questions, How to study for a math test, math tips, tricks and shortcuts, multiple choice strategies and more!
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