


PERT - MATH BOOTCAMP



TIPS TO HELP WITH BASIC SKILLS AND
CONCEPTS FOR THE PERT

VALENCIA COLLEGE

PERT Boot Camp

Introduction:

The purpose of the Florida's Postsecondary Education readiness Test (PERT) is to assess your academic skills in mathematics, reading and writing. The results of the assessments are used to determine your placement into the appropriate college course.

You cannot pass or fail the PERT - it is only used to determine which courses are best for you. Because you are required to place into Intermediate Algebra to start your Dual Enrollment journey here at Valencia, we encourage you to take the PERT Boot Camp seriously so that your course placement is accurate.

General Information:

The PERT assessments are computer-adaptive, which means the questions are chosen based on your answers to previous questions. You will not be allowed to change your answer once you have moved on to the next question. If you do not know the answer to a question, you are encouraged to try answering the question by eliminating one or more of the answer options and then select from the remaining choices.

You are not allowed to bring a calculator, however, for some questions, a pop-up calculator will be available on the screen for you to use.

Test Taking Tips:

Prepare – Take practice assessments and study areas of weakness.

Read the directions carefully – When you take the assessments, make sure to take your time and carefully follow the instructions for each question.

Use reasoning when answering – Identify what the questions wants you to do, try to find the correct answer before you read all the choices, eliminate the choices that you know are incorrect, and read all choices to pick the best answer.

Review – Be sure to review each answer carefully before submitting. You will not be able to go back to the question.

PERT Math Assessment:

There are 30 questions on the Math portion of the PERT. The content that is tested is listed below:

Mathematics

- Equations – solving linear equations, linear inequalities, quadratic equations and literal equations
- Evaluating algebraic expressions
- Polynomials – factoring, simplifying, adding, subtracting, multiplying and dividing
- Dividing by monomials and binomials
- Applying standard algorithms or concepts
- Coordinate planes – translating between lines and inspect equations
- Focusing on pairs of simultaneous linear equations in two variables

Review:

The following concepts provide a basic overview of the type of information you will need to know to perform well on the math assessment but it is not intended to be a comprehensive listing of all content to be tested.

Here are a few basic rules:

Order of Operations

- work within parentheses
- simplify exponents
- multiplication or division from left to right
- addition and subtraction

Exponents

The base is multiplied by itself the number of times indicated by the exponent.

$$x^5 = x \cdot x \cdot x \cdot x \cdot x$$

$$2^5 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 32$$

Prime Number

A prime number is defined as an integer that is greater than 1, and has only two positive factors, 1 and itself.

The first ten prime numbers are:

2, 3, 5, 7, 11, 13, 17, 19, 23, 29

Percents

The word percent means “hundredths” or a number which is divided by 100. Converting a number into a percentage involves multiplying the number by 100.

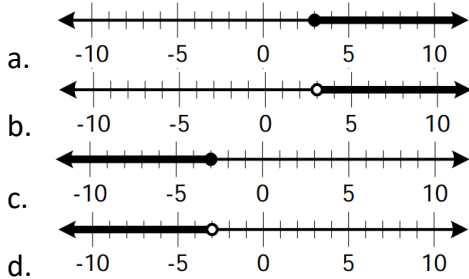
A percent can be determined by performing the division of the part by the total and multiplying it by 100:

$$\text{Percent} = \frac{\text{Part}}{\text{Total}} \cdot 100$$

Sample Questions:

Equations – solving linear equations, linear inequalities, quadratic equations and literal equations

- Which of the following is a solution to the equation $y + (4 - 3y) - 2 = 0$?
 - 1
 - 0
 - 1
 - 2
- Graph the solution of $y - 2 > 1$ on a number line.



- In the following inequality, solve for x : $-4x + 8 \geq 48$
 - $x \geq 10$
 - $x \geq -10$
 - $x \leq 10$
 - $x \leq -10$

Evaluating algebraic expressions

- Which of the following is equivalent to $(8 - 5) \div 2^3$?
 - $\frac{3}{8}$
 - $\frac{19}{8}$
 - $\frac{27}{8}$
 - $\frac{1}{125}$
- What is the value of the algebraic expression if $x = \frac{1}{2}$, $y = -1$, and $z = 2$?
 $6x(y^2z)$
 - 12
 - 6
 - 1
 - 6
- What is the value of the algebraic expression if $a = 4$, and $b = 2$?
 $a^{b+b}b^a - (a^b \div b)b^a$
 - 3968
 - 128
 - 4032
 - 4224

7. What is the value of the algebraic expression if $a = -5$, $b = -2$, and $c = \frac{1}{3}$?
 $-|a - b| \div c$
- 9
 - 3
 - 9
 - 3

Polynomials – factoring, simplifying, adding, subtracting, multiplying and dividing

8. Which of the following is equivalent to the expression $(3ab)(-5ab)$?
- $-2ab$
 - $-2a^2b^2$
 - $-15ab$
 - $-15a^2b^2$
9. Expand the following expression: $(2x - 5)(x + 7)$
- $2x^2 + 9x - 35$
 - $11x - 35$
 - $2x^2 - 19x - 35$
 - $2x^2 + 9 + 35$
10. Expand the following expression: $(4x^3 - 6)(-3x^2 + 2x - 5)$
- $-12x^5 + 8x^4 - 20x^3 + 18x^2 - 12x + 30$
 - $-12x^6 + 8x^3 - 20x^3 + 18x^2 - 12x + 30$
 - $-12x^5 + 8x^4 - 20x^3 + 18x^2 - 4x - 11$
 - $12x^5 + 8x^4 - 20x^3 + 18x^2 - 12x - 30$
11. Factor completely: $x^2 - x - 6$
- $(x - 2)(x + 3)$
 - $(x - 1)(x - 6)$
 - $(x + 2)(x - 3)$
 - $(x + 1)(x - 6)$
12. Which of the following is a solution to the equation $x^2 - 6x + 5 = 0$?
- $x = -5$
 - $x = -1$
 - $x = \frac{1}{5}$
 - $x = 5$
13. Factor the following expression: $9x^2y - 18xy - 27y$
- $9(x^2y - 2xy - 3y)$
 - $9y(x + 3)(x + 1)$
 - $9y(x - 3)(x + 1)$
 - $9y(x + 3)(x - 1)$

14. Which of the following is equivalent to the expression $3x^2 - 4x + 5 - (-4x^2 + 5x - 7)$?
- $7x^2 - 9x + 12$
 - $-x^2 - 9x + 12$
 - $7x^2 + x - 2$
 - $-x^2 + x + 12$

Dividing by monomials and binomials

15. Simplify the following expression: $\frac{3x^4y^2}{xy^2}$

- $3x^3$
- $3x^2y$
- $3x^4y$
- $\frac{3x^3y}{xy}$

16. Simplify the following expression: $\left(\frac{16m^{16}y^4z^6}{8m^8y^2z^3}\right)^4$

- $8m^{12}y^6z^6$
- $2m^{12}y^2z^3$
- $8m^{32}y^8z^8$
- $16m^{32}y^8z^{12}$

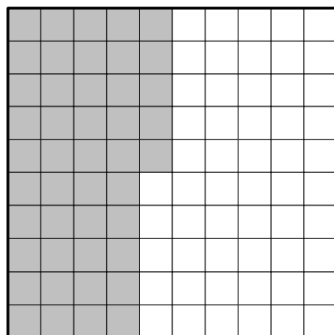
17. Simplify the following expression: $\frac{64x^4 + 8x^3 - 4x^2 + 16x}{8x}$

- $56x^3 - 12x^2 + 8$
- $8x^3 + x^2 - \frac{1}{2}x + 2$
- $8x^4 + x^3 - \frac{1}{2}x^2 + 2x$
- $8x^3 + x^2 - 2x + 2$

Applying standard algorithms or concepts

18. What percent of the grid is shaded?

- 35%
- 40%
- 45%
- 55%



19. What is the midpoint of points A(-20, 8) and B(5, 3)?

- a. (5.5, 7.5)
- b. (7.5, 5.5)
- c. (5.5, -7.5)
- d. (-7.5, 5.5)

20. Simplify the following expression: $\sqrt{3}(5\sqrt{3} - \sqrt{12} + \sqrt{10})$

- a. $9 + \sqrt{30}$
- b. $15 - \sqrt{15} + \sqrt{13}$
- c. $15\sqrt{3} - 3\sqrt{12} + 3\sqrt{10}$
- d. $3 - \sqrt{13}$

21. Solve the following equation for y: $(y + 10)^2 - 625 = 0$

- a. $y = 615$
- b. $y = -15, 15$
- c. $y = -15$
- d. $y = 15, -35$

22. Convert the following decimal to a simplified improper fraction: 7.35

- a. $\frac{7}{35}$
- b. $\frac{147}{20}$
- c. $\frac{245}{35}$
- d. $\frac{735}{100}$

Coordinate planes – translating between lines and inspect equations

23. A line passes through points A(-3, 18) and B(5, 2). What is the slope of the line?

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

24. Which of the following is the equation of a line that passes through (-2, -1) and (-4, -3)?

- a. $y = \frac{1}{2}x + 1$
- b. $y = x + 1$
- c. $y = \frac{1}{2}x - 1$
- d. $y = x - 1$

25. Find the x-intercept of the following equation: $2y - 5x = -13$

- a. $(0, -\frac{13}{5})$
- b. $(-\frac{13}{5}, 0)$
- c. $(\frac{13}{5}, 0)$
- d. $(0, \frac{13}{5})$

26. Which of the following lines is parallel to the line $y = 3x - 12$?
- $3y - 9x = -12$
 - $y = -\frac{1}{3}x - 12$
 - $12y - 36x = -144$
 - $y + 3x + 12 = 0$
27. Which of the following lines is perpendicular to the line $y = -5x + 27$?
- $y = 5x + 2$
 - $y = -\frac{1}{5}x + 9$
 - $y = \frac{1}{5}x + 7$
 - $y = -5x - 27$
28. In a coordinate plane, what is the distance between point A(4, 9) and B(15, 18)?
- 9
 - $\sqrt{11}$
 - 202
 - $\sqrt{202}$

Focusing on pairs of simultaneous linear equations in two variables

29. Solve for y using the following system of equations:
- $$\begin{aligned} 2x - 6y &= 12 \\ -6x + 14y &= 42 \end{aligned}$$
- 19.5
 - 52.5
 - 2.44
 - 6.56
30. Calculate the point of intersection for the following lines:
- $$\begin{aligned} 6x + 3y &= 24 \\ 5y - 10 &= 15x \end{aligned}$$
- (5.6, 1.2)
 - (-1.2, 5.6)
 - (1.2, 5.6)
 - (-5.6, 1.2)
31. Translate the following scenario as a system of equations. Do not solve!
- A baseball team played 72 games last season. They won three times as many games as they lost. How many games did they team win?
- $L = 3W, W - L = 72$
 - $W = 3L, W + L = 72$
 - $W = 3L, W - L = 72$
 - $L = 3W, W + L = 72$

Answer Key:

1. C	12. D	23. B
2. B	13. C	24. B
3. D	14. A	25. C
4. A	15. A	26. A
5. D	16. D	27. C
6. A	17. B	28. D
7. C	18. C	29. A
8. D	19. D	30. C
9. A	20. A	31. B
10. A	21. D	
11. C	22. B	

Additional Resources:

Florida's Postsecondary Education Readiness Test (P.E.R.T.) Study Guide -

<http://www.fldoe.org/core/fileparse.php/5592/urlt/0078248-pert-studentstudyguide.pdf>

Free PERT Math Practice Test Video - <https://youtu.be/NXQnP92gE8M>

Valencia College Taking the PERT Exam Information - valenciacollege.edu/students/assessments/pert.php

Valencia College PERT Review Booklet for Mathematics -

<https://valenciacollege.edu/students/assessments/documents/PERTmathbookletUPDATE.pdf>

Dual Enrollment PERT Preparation Course - <https://imathas.valenciacollege.edu>

Create an account and Register for Course ID: **3428** Enrollment Key: **pert**