

PERT

College-Ready

Booklet

Math Sample Questions & Video Links

Directions

Please note that you will need an internet connection in order to utilize the web links.

This booklet contains mathematics problems and concepts that will help students prepare for Florida's Postsecondary Education Readiness Test (PERT). Workout each exercise and keep track of your answers. If you run into difficulty, click on the link next to [Hint]. Each link will take you to a specific video on the Khan Academy website that will discuss the topic further.

Once you have finished all of the exercises, you may check the answers in the back.

To learn more about the PERT, click here:

https://college.measuredsuccess.com/mscollege/help_resources/P.E.R.T_Study_Guide.pdf

To learn more about PERT test preparation at Miami Dade College, click here:

<http://www.mdc.edu/main/testing/examprep/pert.aspx>

To learn more about Khan Academy, click here:

<http://www.khanacademy.org/>

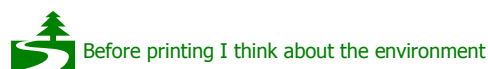
This document was revised on April 4, 2013.

Prepared by Jared Blanchette | Edited by Ailen Gonzalez

Contact Information: Testing, 1780 West 49th Street, Room 1225, Hialeah, Florida 33012

Phone: (305) 237 – 8606 | Fax: (305) 237 – 8846 | Email: jblanche@mdc.edu

Disclaimer: Miami Dade College is not affiliated with Khan Academy. The links contained within this resource are subject to change and/or become obsolete without notice.



PERT Math Subtest Example Problems

1. Add:

$$38 + 17$$

[Hint]: <http://www.khanacademy.org/math/arithmetic/addition-subtraction/v/addition-2>

Answers:

- A) 45
 - B) 55
 - C) 21
 - D) 54
-

2. Subtract:

$$604 - 87$$

[Hint]: <http://www.khanacademy.org/math/arithmetic/addition-subtraction/v/subtraction-3---introduction-to-borrowing-or-regrouping>

Answers:

- A) 617
 - B) 691
 - C) 517
 - D) 591
-

3. Multiply:

$$47 \times 32$$

[Hint]: <http://www.khanacademy.org/math/arithmetic/multiplication-division/v/multiplication-5---2-digit-times-a-2-digit-number>

Answers:

- A) 1,504
- B) 1,494
- C) 1,304

D) 79

4. Use long division. If you have a remainder, use the letter R to denote this:

$$7509 \div 5$$

[Hint]: <http://www.khanacademy.org/math/arithmetic/multiplication-division/v/division-3--more-long-division-and-remainder-examples>

Answers:

- A) 151
 - B) 151 R 4
 - C) 1,501
 - D) 1,501 R 4
-

5. Add or subtract as indicated:

$$-13 - 9$$

[Hint]: <http://www.khanacademy.org/math/arithmetic/negative-numbers/add-sub-negatives/v/adding-subtracting-negative-numbers>

Answers:

- A) -21
 - B) -22
 - C) 22
 - D) 4
-

6. Multiply:

$$-92 \times -13$$

[Hint]: <http://www.khanacademy.org/math/arithmetic/negative-numbers/add-sub-negatives/v/multiplying-positive-and-negative-numbers>

Answers:

- A) 1,196

- B) -1,196
 - C) 1,106
 - D) -1,106
-

7. Rewrite using the distributive property:

$$2(3x - 5)$$

[Hint]: <http://www.khanacademy.org/math/arithmetic/number-properties/v/the-distributive-property-2>

Answers:

- A) $6x - 5$
 - B) $3x - 10$
 - C) $6x - 10$
 - D) $-4x$
-

8. Use the Order of Operations to simplify:

$$2 - 3(4 - 6) \div 3 - 1$$

[Hint]: <http://www.khanacademy.org/math/arithmetic/order-of-operations/v/more-complicated-order-of-operations-example>

Answers:

- A) -1
 - B) -3
 - C) 1
 - D) 3
-

9. Find the prime factorization of 24.

[Hint]: <http://www.khanacademy.org/math/arithmetic/factors-multiples/v/prime-factorization>

Answers:

- A) $2^2 \cdot 3$

- B) $3 \cdot 8$
 - C) $2^3 \cdot 3$
 - D) $2 \cdot 3 \cdot 4$
-

10. Simplify the fraction, write in lowest terms:

$$\frac{24}{36}$$

[Hint]: <http://www.khanacademy.org/math/arithmetic/fractions/v/fractions-in-lowest-terms>

Answers:

- A) $\frac{3}{4}$
 - B) $\frac{12}{18}$
 - C) $\frac{2}{3}$
 - D) $\frac{4}{6}$
-

11. Convert $7\frac{2}{3}$ to an improper fraction.

[Hint]: <http://www.khanacademy.org/math/arithmetic/fractions/v/convert-mixed-numbers-to-improper-fractions>

Answers:

- A) $\frac{17}{3}$
 - B) $\frac{23}{3}$
 - C) $\frac{23}{2}$
 - D) $\frac{17}{2}$
-

12. Subtract:

$$\frac{3}{14} - \frac{1}{7}$$



[Hint]: <http://www.khanacademy.org/math/arithmetic/fractions/v/adding-fractions-with-unlike-denominators>

Answers:

- A) $\frac{1}{14}$
 - B) $\frac{2}{14}$
 - C) $\frac{1}{7}$
 - D) $\frac{2}{7}$
-

13. Divide:

$$-\frac{14}{21} \div \frac{6}{7}$$

[Hint]: <http://www.khanacademy.org/math/arithmetic/fractions/v/dividing-fractions>

Answers:

- A) $\frac{4}{7}$
 - B) $-\frac{4}{7}$
 - C) $-\frac{7}{9}$
 - D) $\frac{7}{9}$
-

14. Round to the nearest hundredth.

54.9439

[Hint]: <http://www.khanacademy.org/math/arithmetic/decimals/v/rounding-decimals>

Answers:

- A) 55
 - B) 54.9
 - C) 54.94
 - D) 54.95
-



15. Add:

$$50.012 + 7.59 + 106.04$$

[Hint]: <http://www.khanacademy.org/math/arithmetic/decimals/v/adding-decimals>

Answers:

- A) 163.642
 - B) 61,375
 - C) 61.375
 - D) 16.3642
-

16. Convert $\frac{9}{50}$ into a decimal.

[Hint]: <http://www.khanacademy.org/math/arithmetic/decimals/v/converting-fractions-to-decimals-example>

Answers:

- A) 0.19
 - B) 0.18
 - C) 0.20
 - D) 0.215
-

17. Divide 12.52 by 0.05.

[Hint]: <http://www.khanacademy.org/math/arithmetic/decimals/v/dividing-decimal>

Answers:

- A) 250.4
 - B) 254
 - C) 251.3
 - D) 249
-

18. Convert 7.5% to a decimal number.

[Hint]: <http://www.khanacademy.org/math/arithmetic/percents/v/representing-a-number-as-a-decimal--percent--and-fraction>



Before printing I think about the environment

Answers:

- A) 7.5
 - B) 0.75
 - C) 0.075
 - D) 0.0075
-

19. Simplify:

$$\frac{x^3y^7}{x^7y^2}$$

[Hint]: <http://www.khanacademy.org/math/arithmetic/basic-exponents/exponent-properties/v/exponent-properties-involving-quotients>

Answers:

- A) $x^{10}y^9$
 - B) x^4y^5
 - C) $\frac{x^4}{y^5}$
 - D) $\frac{y^5}{x^4}$
-

20. A catering company requires that they have 3 servers scheduled per every 20 patrons. If this company is planning to host an event for 100 patrons, how many servers should they schedule?

[Hint]: <http://www.khanacademy.org/math/arithmetic/basic-ratios-proportions/v/find-an-unknown-in-a-proportion-2>

Answers:

- A) 9 servers
 - B) 12 servers
 - C) 15 servers
 - D) 18 servers
-

21. Express 25 degrees Celsius ($^{\circ}\text{C}$) as a temperature in degrees Fahrenheit ($^{\circ}\text{F}$) using the formula:

$$F = \frac{9}{5}C + 32$$

[Hint]: <http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/variable-and-expressions/v/evaluate-a-formula-using-substitution>

Answers:

- A) 75°F
 - B) 77°F
 - C) 45°F
 - D) -35°F
-

22. Solve:

$$4x - 9 = 3$$

[Hint]: http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/equations_beginner/v/equations-2

Answers:

- A) $x = 4$
 - B) $x = -6$
 - C) $x = 12$
 - D) $x = 3$
-

23. Solve:

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

[Hint]: http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/equations_beginner/v/solving-equations-1

Answers:

- A) $x = -1$
- B) $x = -2$



- C) $x = 1$
- D) $x = 2$

24. The perimeter of a rectangular slab of concrete is 24 meters. If the length of the rectangular slab is 2 meters longer than its width, what is the width of the slab?

[Hint]: http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/equations_beginner/v/application-problems-with-equation-in-one-variable

Answers:

- A) 5 meters
- B) 6 meters
- C) 7 meters
- D) 8 meters

25. Solve:

$$\frac{2}{3}x - 1 = \frac{1}{6}x + 2$$

[Hint]: <http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/basic-equation-practice/v/solving-equations-with-the-distributive-property-2>

Answers:

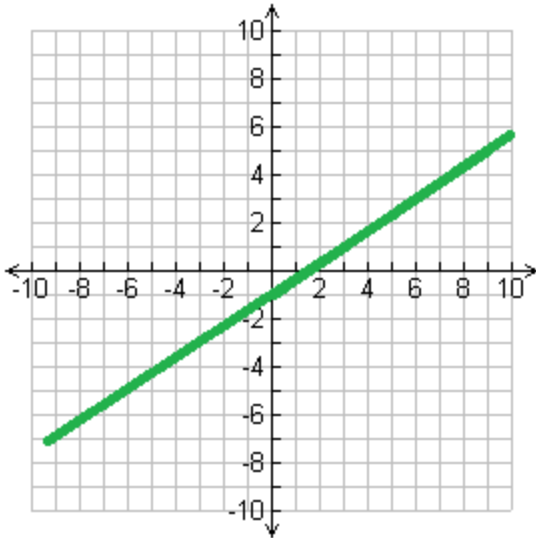
- A) $x = 9$
- B) $x = 8$
- C) $x = 7$
- D) $x = 6$

26. Choose the graph that best represents the following linear equation:

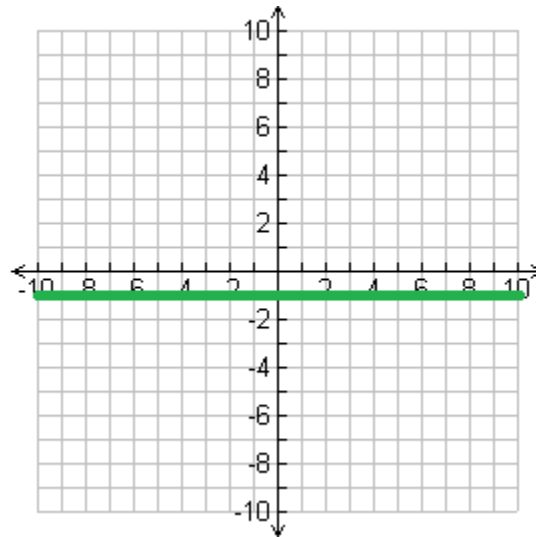
$$y = \frac{2}{3}x - 1$$

[Hint]: http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing_solutions/v/algebra--graphing-lines-1

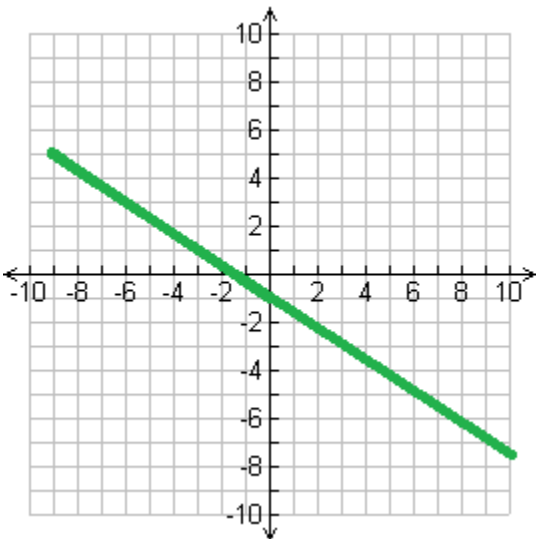
Answers:



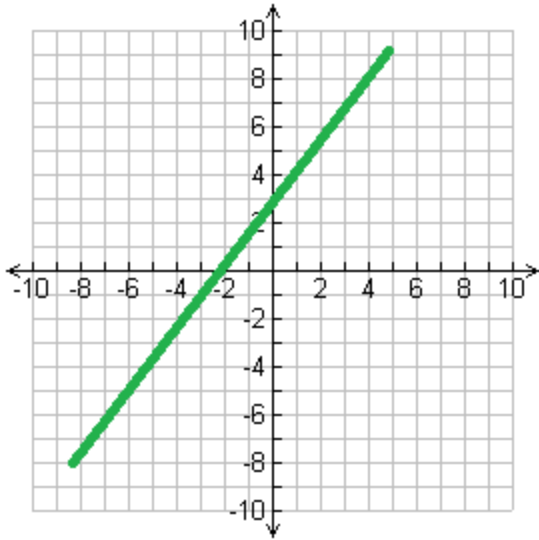
A)



B)



C)



27. Find the x-intercept for the linear equation:

$$4x - 3y = 12$$

[Hint]: http://www.khanacademy.org/math/algebra/linear-equations-and-inequalities/graphing_with_intercepts/v/x--and-y-intercepts

Answers:

- A) (0, -4)
- B) (0, 3)
- C) (-4, 0)
- D) (3, 0)

28. Solve the system of linear equations:

$$2x + 8y = -14$$

$$-3x + y = -18$$

[Hint]: <http://www.khanacademy.org/math/algebra/systems-of-equations-and-inequalities/systems-of-equations/overview/v/solving-systems-by-elimination-3>

Answers:

- A) (-3, 5)

- B) (5, -3)
- C) (-5, 3)
- D) (3, -5)

29. Solve for x:

$$-2x + 4 > 5(x - 2)$$

[Hint]: http://www.khanacademy.org/math/algebra/linear_inequalities/inequalities/v/multi-step-inequalities-3

Answers:

- A) $x > 2$
- B) $x > -2$
- C) $x < 2$
- D) $x < -2$


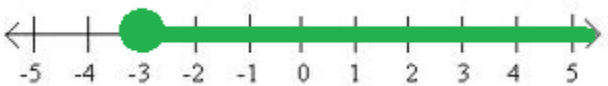

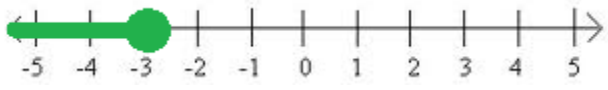
30. Which graph best represents the solution set to the linear inequality?

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

[Hint]:

http://www.khanacademy.org/math/algebra/linear_inequalities/inequalities/v/inequalities-on-a-number-line

Answers:

- A) 
- B) 
- C) 
- D) 

31. Find a factor of the quadratic expression:

$$x^2 + 4x - 21$$

[Hint]:

http://www.khanacademy.org/math/algebra/quadratics/factoring_quadratics/v/factoring-quadratic-expressions

Answers:

- A) $(x - 7)$
 - B) $(x + 3)$
 - C) $(x - 3)$
 - D) $(x + 6)$
-

32. Factor completely:

$$x^2 - 36$$

[Hint]:

http://www.khanacademy.org/math/algebra/quadratics/factoring_quadratics/v/factoring-special-products

Answers:

- A) $(x + 3)(x - 12)$
 - B) $(x - 4)(x + 9)$
 - C) $(x + 6)(x + 6)$
 - D) $(x - 6)(x + 6)$
-

33. Factor completely:

$$6x^2 - 11x - 10$$

[Hint]:

http://www.khanacademy.org/math/algebra/quadratics/factoring_quadratics/v/factor-by-grouping-and-factoring-completely

Answers:

- A) $(3x - 2)(2x + 5)$
- B) $(6x - 1)(x + 10)$



- C) $(2x - 5)(3x + 2)$
D) $(x - 5)(6x + 2)$
-

34. Simplify:

$$(x^3y)^2(xy^5)^3$$

[Hint]: <http://www.khanacademy.org/math/algebra/exponent-equations/exponent-properties-algebra/v/exponent-properties-involving-products>

Answers:

- A) x^8y^{10}
B) x^9y^{17}
C) x^9y^{11}
D) x^8y^{17}
-

35. Simplify:

$$(3x^2 - 4x + 2) - (8x - 3)$$

[Hint]:

http://www.khanacademy.org/math/algebra/polynomials/polynomial_basics/v/subtracting-polynomials

Answers:

- A) $3x^2 - 12x - 1$
B) $3x^2 - 12x + 5$
C) $-5x^2 - 4x + 5$
D) $-5x^2 + 4x - 1$
-

36. Divide the polynomials:

$$(x^2 - 5x + 12) \div (x + 3)$$

[Hint]:

http://www.khanacademy.org/math/algebra/polynomials/dividing_polynomials/v/dividing-polynomials-with-remainders

Answers:

- A) $x + 8 + \frac{36}{x+3}$
 - B) $x - 8 + \frac{36}{x+3}$
 - C) $x - 8 + \frac{12}{x+3}$
 - D) $x - 8$
-

37. Solve:

$$\frac{3}{2x} + \frac{1}{4} = \frac{1}{6x}$$

[Hint]: http://www.khanacademy.org/math/algebra/rational-expressions/rational_expressions/v/solving-rational-equations-2

Answers:

- A) $-\frac{16}{3}$
 - B) -16
 - C) $\frac{16}{3}$
 - D) 4
-

38. Add the rational expressions:

$$\frac{1}{2x^2} + \frac{4}{3x}$$

[Hint]: http://www.khanacademy.org/math/algebra/rational-expressions/rational_expressions/v/subtracting-rational-expressions

Answers:

- A) $\frac{11x}{6x^2}$
- B) $\frac{11}{6x}$
- C) $\frac{8x+3}{6x^2}$
- D) $\frac{8x+1}{2x^2}$



39. Solve for x:

$$x^2 - 2x = 15$$

[Hint]:

http://www.khanacademy.org/math/algebra/quadratics/factoring_quadratics/v/Example%202:%20Solving%20a%20quadratic%20equation%20by%20factoring

Answers:

- A) $x = -3, x = 5$
- B) $x = 3, x = -5$
- C) $x = 2, x = -3$
- D) $x = -2, x = 3$

40. Simplify:

$$\sqrt[3]{16x^2y^{10}}$$

[Hint]: <http://www.khanacademy.org/math/algebra/exponent-equations/exponent-properties-algebra/v/simplifying-cube-roots>

Answers:

- A) $4xy^5$
- B) $4xy^7$
- C) $2xy^{53}\sqrt{2}$
- D) $2y^3\sqrt[3]{2x^2y}$

41. Is $(-3, 5)$ a solution to the equation $3x - 2y = 19$?

[Hint]:

http://www.khanacademy.org/math/trigonometry/graphs/graphing_coordinates/v/ordered-pair-solutions-of-equations-2

Answers:

- A) Yes
- B) No

42. Evaluate the function if $x = -4$.

$$f(x) = 3(5 - x)$$

[Hint]:

http://www.khanacademy.org/math/trigonometry/functions_and_graphs/function_introduction/v/linear-function-graphs

Answers:

- A) 27
- B) 3
- C) 12
- D) 19

43. Evaluate the function if $x = 3$.

$$f(x) = \begin{cases} x^2 + 3 & \text{if } x < 3 \\ x & \text{if } x \geq 3 \end{cases}$$

[Hint]:

http://www.khanacademy.org/math/trigonometry/functions_and_graphs/function_introduction/v/linear-function-graphs

Answers:

- A) x
- B) 3
- C) 12
- D) 1

44. Find the domain of the function.

$$f(x) = \sqrt{4 + x}$$

[Hint]:

http://www.khanacademy.org/math/trigonometry/functions_and_graphs/function_introduction/v/domain-of-a-function



Answers:

- A) $x > -4$
 - B) $x \geq 4$
 - C) $x \geq -4$
 - D) $x < 4$
-

45. Use the Quadratic Formula to solve.

$$5x^2 + 2x = -7$$

[Hint]:

http://www.khanacademy.org/math/trigonometry/polynomial_and_rational/quad_formula_tutorial/v/using-the-quadratic-formula

Answers:

- A) $x = \frac{-1 \pm 6i}{5}$
 - B) $x = \frac{-1 \pm i\sqrt{34}}{5}$
 - C) $x = \frac{-1 \pm i\sqrt{35}}{5}$
 - D) $x = \frac{1 \pm i\sqrt{34}}{5}$
-

46. Identify the vertex of the parabola.

$$y = 3x^2 - 12x + 1$$

[Hint]:

http://www.khanacademy.org/math/trigonometry/polynomial_and_rational/solving_graphing_quadratics/v/quadratic-functions-3

Answers:

- A) (3, -10)
 - B) (-4, 2)
 - C) (3, 10)
 - D) (2, -11)
-

47. Factor the difference of cubes completely.

$$54x^3 - 128$$

[Hint]:

http://www.khanacademy.org/math/trigonometry/polynomial_and_rational/polynomial_tutorial/v/difference-of-cubes-factoring

Answers:

- A) $2(3x + 4)(9x^2 - 12x + 16)$
 - B) $2(27x^3 - 64)$
 - C) $(3x - 4)(9x^2 + 12x + 16)$
 - D) $2(3x - 4)(9x^2 + 12x + 16)$
-

48. If $\cos(\theta) = \frac{\sqrt{3}}{2}$, determine the value of θ .

[Hint]: http://www.khanacademy.org/math/trigonometry/basic-trigonometry/inverse_trig_functions/v/inverse-trig-functions--arcsin

Answers:

- A) 30°
 - B) 45°
 - C) 60°
 - D) 90°
-

49. If you roll a six sided die, what is the probability that you will roll a number that is at least 5?

[Hint]:

http://www.khanacademy.org/math/trigonometry/prob_comb/basic_prob_precalc/v/basic-probability

Answers:

- A) .2000
- B) .3333
- C) .4000
- D) .6667



50. The complex number i stands for $\sqrt{-1}$. Evaluate i^{27} .

[Hint]:

http://www.khanacademy.org/math/trigonometry/imaginary_complex_precalc/i_precalc/v/calculating-i-raised-to-arbitrary-exponents

Answers:

- A) i
- B) $-i$
- C) 1
- D) -1

END OF REVIEW

Solutions:

- | | | |
|-------|-------|-------|
| 1) B | 18) C | 35) B |
| 2) C | 19) D | 36) B |
| 3) A | 20) C | 37) A |
| 4) D | 21) B | 38) C |
| 5) B | 22) D | 39) A |
| 6) A | 23) B | 40) D |
| 7) C | 24) A | 41) B |
| 8) D | 25) D | 42) A |
| 9) C | 26) A | 43) B |
| 10) C | 27) A | 44) C |
| 11) B | 28) B | 45) B |
| 12) A | 29) D | 46) D |
| 13) C | 30) C | 47) D |
| 14) C | 31) C | 48) A |
| 15) A | 32) D | 49) B |
| 16) B | 33) C | 50) B |
| 17) A | 34) B | |