**PERT Math Information**

* 30 multiple choice test items on computer
* A drop-down calculator is provided on SOME problems. No hand-held calculator is allowed.
* Untimed test
* Your score given immediately after submitting
* Perfect Score = 150
* MAT1033 = 114+

(Score required for ANY college class)

* MAC1105 = 123+ (Score needed to take College Algebra)

**PERT Math Topics**

1. Properties of Exponents

2. Order of Operations (Simplify and Evaluate)

3. Fractions, Decimals, Percents

4. Solving Equations

5. Solving and Graphing Inequalities

6. Slope-Intercept Form of a Linear Equation

7. Solving and Graphing Systems of Equations

8. Polynomials (Simplify, Add, Multiply, Factor)
 **PERT Math Practice Problems Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Use the *Order of Operations* and *Properties of Exponents* to simplify.**

**1.** (32 ÷ 16)4+ (7 – 2)2 **2.** (-4gh)(-10gh)

**3.** 5 32 **4.** (5x3)2

**5.** 12x6$ $ **6.** 95
 6x3

**7.** 5-3 **8.** x8x4 x2

**9.** (4x)2(2x + 5y) **10.** 53 – 4 32 + 13

**A.** -6
**B.** 4
**C.** 102 **D.** 126

**11.** 25m7n2p3
 5m5n8p

**A.** 5m2p2 **C.** 5m2n6p2
 n6

**B.** 5 **D.** 5m35n16p3
 m2n6p2**12.** (x6)6
 x3

**A.** x4 **C.** x12
**B.** x9 **D.** x33

**13.** Evaluate [(7 – a) (ba – 7)]b when a = 2 and b = 3

**14.** Evaluate x + y + z when x = 3, y = -2 and z = -5

**15.** Evaluate (a2 – 5)3 when a = 3

**16.** Evaluate a2 + 4(3 + a) when a = 5

**A.** 42
**B.** 57
**C.** 92
**D.** 232

**17.** Evaluate 7a + 3bc – 6c when a = 1, b = ⅓, and c = -2

**18.** Evaluate $\frac{ a-10b }{c} $ when a = 2, b = ½, and c = - ⅓

**A.** 1
**B.** $\frac{ 4 }{3}$
**C.** 9
**D.** 12

**19.** Evaluate –n(n + n) + n(n – n) when n = 2.

**20.** Evaluate $\frac{ 8a+2b-4c }{ac}$ when a = -1, b = 2, c = -2

**21.** Evaluate ½(x2+ 4) when x = 6

**22.** Evaluate 4x2y – 2xy2 + y when x = 1 and y = -4
**A.** -52
**B.** -44
**C.** 12
**D.** 28

**23.** Evaluate mn + 2p when m = -2, n = -3, and p = -5
**A.** -10
**B.** -4
**C.** 16
**D.** 20

**24.** Evaluate (2x)2 – 3y2 when x = -1 and y = 2
**A.** -140
**B.** -30
**C.** -6
**D.** -8

**25.** Evaluate (-b + b)(2 + b) when b = 5
**A.** 0
**B.** 7
**C.** 12
**D.** 65

**26.** Evaluate - | a – b | when a = 6 and b = -2
 b ÷ a
**A.** -24
**B.** -12
**C.** 12
**D.** 24

**27.** Evaluate the expression √6(x – y) – (x + y) when x = 17, y = 7, and z = 6
 z
**A.** 0
**B.** 1
**C.** 6
**D.** 12

**Fractions, Decimals, Percents**

**28.** Express as a decimal: $\frac{ 33 }{20}$ **29.** Express as a decimal: $\frac{ 3 }{8}$

**30.** Express 60% of $\frac{ 4 }{5}$ as a fraction. **31.** Express $\frac{ 67 }{25} $as a percent.

**32.** Express 2.78 as a fraction.

**33.** Express 35% as a fraction in lowest terms.

**34.** Express 0.40 as a fraction in lowest terms.

**35.** To express 20% of 2 as a fraction, which of the following steps will produce the correct result?

**A.** Divide 20 by 2 to get the numerator, and then place that result over 100 in the denominator.
**B.** Divide .20 by 2 to get the numerator, and then place that result over 100 in the denominator.
**C.** Multiply 20 by 2 to get the numerator, and then place that result over 100 in the denominator.
**D.** Multiply .20 by 2 to get the numerator, and then place that result over 100 in the denominator.

**36.** To express 30% of $\frac{ 4 }{3} $as a decimal, which of the following steps will produce the correct result?
**A.** Multiply 30 by 3, then divide by 4.
 **B.** Multiply 30 by 4, then divide by 3.
**C.** Multiply 0.30 by 3, then divide by 4.
**D.** Multiply 0.30 by 4, then divide by 3.

**37.** What percent of the figure below is shaded?


**38.** What percent of the figure below is shaded?


**39.** What percent of the figure below is shaded?



**Solve each equation.**

**40.** 2y + 10 – 6y = 12 **41.** 12(9 – 3x) + 2x = 516

**42.** 11 – (2y – 3) = 0 **43.** 2x – 3 = -9

**44.** 2x + 5 + 3x = 25 **45.** 5(x + 2) = 17 + 2(x + 10)

**46.** 6 = $\frac{ x }{4}$ + 2 **47.** 5(3x – 2) = 5

**48.** - $\frac{ 1}{2}$x – (-3) – x = 15 **49.** $\frac{ 3 }{5}$x – 1 = 2

**A.** $\frac{ 3 }{5}$
**B.** $\frac{ 5 }{3}$
**C.** $\frac{ 9 }{5}$
**D.** 5

**50.** 5x – 38 = -2(1 – 7x) **51.** 5(5x – 2) = 5

**A.** -4 **A**$. \frac{ 1 }{5}$
**B.** -3 **B.** $\frac{ 3 }{5}$
**C.** 3 **C.** 1
**D.** 4  **D.** 5

**52.** 17 – 2x = -3 **53.** $\frac{ 4x-3 }{2}$ = -3½

**A.** -10 **A.** – $\frac{ 5 }{2}$
**B.** -7 **B.** -1
**C.** 7 **C.** 1
**D.** 10 **D.** $\frac{ 5 }{2}$

**Solve for y by rewriting into slope-intercept form.**

**54.** 4(y + x) = 4 **55.** 8x – 4y = 2

**56.** 8x + 5y = 4 **57.** y – 1 = 5(x – 2)

**58.** 4x + 7y = 4 **59.** 4(7y + x) = 8

**60.** 3(2x + y) = -9 **61.** 2x + 5 = 3y – 4

**Find the y-intercept.**

**62.** 5x – 3y = 9 **63.** 2y = 6x + 4

**64.** x – 2y = 10 **65.** 4x = 2y + 8

**66.** 5x – 2y = 7 **67.** 4x = -3y + 6

**68.** Which of the following is the equation of the line that passes through the point (-2, 1) and has a slope of 4?

**A.** y = 4x – 9 **C.** y = 4x – 6
**B.** y = 4x + 9  **D.** y = 4x + 6

**69.** Which of the following is the equation of the line that has a slope of -2 and passes through the point (1, -3)?

**A.** y = -2x – 5 **C.** y = -2x – 1
**B.** y = -2x + 1  **D.** y = -2x + 5

**Graph the solution to each inequality.**

**70.** y – 4 < 2 **71.** -4y > -12

**72.** -4 < 2x **73.** x – 3 > -3

**74.** -1 > x + 8 **75.** 9w + 4 < 5w – 16

**76.** 7 – x < 2 **77.** 4 < -5 – x

**Polynomials**

**78.** Add (-7x3 + 5ax – 3) + (7x3 + 5 – 9ax) **79.** Simplify 17v2 + 12v + 3 + (8v – 5)

**A.** 14x3 – 4ax + 2
**B.** x6 – 4ax + 2
**C.** -4ax + 2
**D.** -49x3 – 45ax – 15

**80.** Multiply (3a + b)(2a – 4b) **81.** Multiply (a + b + c)(a2+ ab + bc + c2)

**82.** Multiply (3k2 – 2k – 8)(k2 – 21) **83.** Multiply (7x + 2)(4x – 5)(3x + 4)

**A.** 3k4 – 63k3 – 40k2 – 8k + 168
**B.** 3k4 – 2k3 +105k2 – 2k + 168
**C.** 3k4 – 65k3 – 8k2 +42k + 168
**D.** 3k4 – 2k3 – 71k2 +42k + 168

**84.** What is the volume of a cube with each side measuring 2x + 3?

**85.** What is the volume of a rectangular prism with length: 3x – 1, width: 2x + 5, and height: 4x + 2?

**86.** Simplify (5n – 7)(2n + 3) + (4n – 6)(5n + 4)

**A.** 30n2 – 13n + 3
**B.** 30n2 + 15n + 3
**C.** 30n2 – 13n – 45
**D.** 30n2 + 15n – 45

**87.** Factor 9x2 – 25

**A.** (3x + 5)(3x + 5) **C.** (3x – 5)(3x – 5)
**B.** (3x + 5)(3x – 5) **D.** (3x2 + 5)(3x2 – 5)

**88.** Factor x2 – 16x + 64

**A.** (x + 8)2 **C.** (x + 8)(x – 8)
**B.** (x – 8)2 **D.** (x – 16)(x + 4)

**89.** Factor the expression 3x2 + 19x + 6

**A.** (x + 1)(3x + 6)  **C.** (x + 2)(3x + 3)
**B.** (x + 6)(3x + 1) **D.** (x + 3)(3x + 2)

**90.** Factor the expression x2 + 2x – 24

**A.** (x + 3)(x – 8) **C.** (x + 6)(x – 4)
**B.** (x + 4)(x – 6)  **D.** (x + 8)(x – 3)

**91.** Find the solutions to the equation 0 = x2 + 7x + 12.

**A.** x = -3 or x = -4 **C.** x = 3 or x = 4
**B.** x = -3 or x = 4 **D.** x = 3 or x = -4

**92.** Solve: 0 = x2 – 29x + 100

**A.** x =1, x = 100 **C.** x = 4, x = 25
**B.** x = 2, x = 50 **D.** x = 5, x = 20

**93.** Solve 0 = x2 + 4x + 4

**A.** x = -4 **C.** x = -2
**B.** x = -4 or x = 1  **D.** x = -2 or x = 2

**94.** Solve: 0 = x2 + 13x – 30
**A.** x = -15 and x = 2 **C.** x = 15 and x = -2
**B.** x = 3 and x = -10 **D.** x = -3 and x = 10

**95.** Solve: 0 = x2 – 15x + 36
**A.** x = 4 and x = 9 **C.** x = -3 and x = -12
**B.** x = 3 and x = 12 **D.** x = -4 and x = -9

 **96.** Solve: 2x2 + 12x – 14 = 0
**A.** x = -7 and x = 1 **C.** x = 7 and x = -1
**B.** x = 2 and x = -6 **D.** x = 6 and x = -2

**97.** Solve: 3x2 – 2x – 5 = 0
**A.** x = 1 and x = - $\frac{ 5 }{3}$ **C.** x = -5 and x = -$ \frac{ 1 }{3}$
**B.** x = 5 and x = $\frac{ 1 }{3}$ **D.** x = -1 and x = $\frac{ 5 }{3}$

**98.** Solve: 16x2 + 62x +42 = 0
**A.** x = $\frac{ 7 }{8}$ and x = 3 **C.** x = $\frac{ 5 }{6}$ and x = 4
**B.** x = -$ \frac{ 7 }{8}$ and x = -3 **D.** x = 2 and x = $\frac{ 3 }{4}$

**99.** Find the values of x that make the equation true: 4x2 + 6x + 2 = 0.

**A.** x = 1 or x = ½ **C.** x = 2 or x = -1
**B.** x = -1 or x = - ½ **D.** x = 4 or x = -1

**100.** Which of the following equations are equivalent?

**A.** (x – 2)2 = 0 **C.** (x – 2)2 = 0
 x2 – 4x + 4 = 0 x2 + 4x + 4 = 0

**B.** (x – 2)2 = 0 **D.** (x – 2)2 = 0
 x2 – 4x – 4 = 0 x2 + 4x – 4 = 0

**101.** Which of the following equations are equivalent?

**A.** y = (x + 3)2 **C.** y = (x + 3)2
 y = x2 + 9x + 9 y = x2 + 9

**B.** y = (x + 3)2 **D.** y = (x + 3)2
 y = x2 + 9x + 6 y = x2 + 6x + 9

**Systems of Equations**

**102.** Horacio weighs 3 pounds more than Kevin. Together their weights total 95 pounds. Which system of equations best represents this situation?

**103.** Solve the following system of equations: 4x + 3y = 7
 3x + 5y = 8

**104.** Which is the solution to the system: 3x + y = 6
 2x + 2y = 4



**A.** (2, 0) **C.** (-2, 6)
**B.** (0, 2) **D.** (4, -2)

**105.** The point (2, -4) is the solution to which of the following systems of equations?

**A.** 6x – y = 16, x – 5y = 18 **C.** 4x + 5y = -12, 6x – 5y = -32

**B.** 9x + 7y = 46, 7x + 9y = -22 **D.** 3x + 3y = -6, -2x + 5y = -24

**106.** The point (5, 6) is the solution to which of the following systems of equations?

**A.** 3x – 2y = 3, -x + 4y = 19 **C.** 8x + y = 46, 4x – 5y = 10

**B.** 5x – 3y = 7, -2x + y = 4 **D.** 9x – 6y = 9, x + 8y = 43

**107.** Which graph represents the following system of equations? **2x + y = 5, x – 3y = 6**
 

**PERT Math Practice Problems Answers**

Pg. 2:  **1.** 41 **2.** 40g2h2 **3.** 45 **4.** 25x6

 **5.** 2x3 **6.** 59,049 **7.** $\frac{ 1 }{125}$ **8.** x10

  **9.** 32x3 + 80x2y **10.** 102 **11.** A

Pg. 3: **12.** D **13.** 1,000 **14.** -4 **15.** 64

 **16.** B **17.** 17 **18.** C **19.** -15

Pg. 4: **20.** 2 **21.** 20 **22.** A **23.** B

 **24.** D **25.** A **26.** D

Pg. 5: **27.** B **28.** 1.65 **29.** 0.375

 **30.**$ \frac{ 12}{25}$ **31.** 268% **32**. $\frac{ 139 }{50}$

**33.** $\frac{ 7 }{20}$ **34.** $\frac{ 2 }{5}$ **35.** C

Pg. 6: **36.** D **37.** 37.5% **38.** 53.3% **39.** 87.5%

**40.** y = - ½ **41.** x = -12 **42.** y = 7 **43.** x = -3

Pg. 7: **44.** x = 4 **45.** x = 9 **46.** x = 16 **47.** x = 1

**48.** x = -8 **49.** D **50.** A **51.** B

**52.** D **53.** B

Pg. 8: **54.** y = -x + 1 **55.** y = 2x – $\frac{ 1 }{2}$ **56.** y = $\frac{-8 }{5}$x + $\frac{ 4 }{5}$

  **57.** y = 5x – 9 **58.** y = $\frac{-4 }{7}$x + $\frac{ 4 }{7}$ **59.** y = $\frac{-1 }{7}$x + $\frac{ 2 }{7}$

 **60.** y = -2x – 3 **61.** y = $\frac{2 }{3}$x + 3 **62.** -3 **63.** 2

 **64.** -5 **65.** -4 **66.** -3.5 **67.** 2

Pg. 9: **68.** B **69.** C **70.**
 6

  **71.** **72.**
 3 -2

  **73.** **74.**
 0 -9

  **75.** **76.**
 -5 5

  **77.**
 -9

Pg. 10: **78.** C **79.** 17v2 + 20v – 2 **80.** 6a2 – 10ab – 4b2

 **81.** a3 + 2a2b + a2c + ab2 +2abc + ac2 +b2c + 2bc2 +c3

  **82.** D **83.** 84x3 + 31x2 – 138x – 40  **84.** 8x3 + 36x2 + 54x + 27

**85.** 24x3 + 64x2 + 6x – 10 **86.** C

Pg. 11: **87.** B **88.** B **89.** B **90.** C

 **91.** A **92.** C **93.** C

Pg. 12: **94.** A **95.** B **96.** A **97.** D

**98.** B **99.** B **100.** A

Pg. 13: **101.** D **102.** x = y + 3, x + y = 95

**103.** (1, 1) **104.** A

Pg. 14: **105.** D **106.** A **107.** 