Systems of Equations

**April 2017**

50. The sum of 2 positive numbers is 151. The lesser number is 19 more than the square root of the greater number. What is the value of the greater number minus the lesser number?

F. 19

G. 66

H. 85

J. 91

K. 121

52. You are given the following system of equations:

y = x2

rx + sy = t

where r, s, and t are integers. For which of the following will there be more than one (x,y) solution, with real-number coordinates, for the system?

F. r2 + 4st > 0

G. s2 - 4rt > 0

H. r2 - 4st < 0

J. s2 – 4rt < 0

K. s2 + 4rt < 0

**June 2017**

22. A fabric store sells flannel and calico fabrics. Joan pays $25 for 3 yards of flannel and 4 yards of calico. Chris pays $11 for 1 yard of flannel and 2 yards of calico. What is the price of 1 yard of calico?

F. $3

G. $4

H. $5

J. $6

K. $7

**April 2016**

36. What is the value of b in the solution of the system of equations below?

6a + 3b = 12

-2a + b = -8

F. -2

G. 1

H. 3

J. 4

K. 10

**June 2016**

25. The system of equations below has 1 solution (a,b). What is the value of b?

3a – 5b = 22

A + 3b = -2

A. -4

B. -2

C. 4

D. 9

E. 20

44. Linh has $3.67 in quarters ($0.25), dimes ($0.10), nickels ($0.05), and pennies ($0.01). She arranges these coins in rows and notices that there are 5 more dimes than quarters. 1 more nickel than quarters, and 25 more pennies than quarters. How many pennies does Linh have?

F. 7

G. 12

H. 25

J. 31

K. 32

**December 2016**

38. The sum of measures of (angle)A and (angle)B is 90°. The sum of the measures of (angle)A and (angle)C is 180°. The sum of the measures of (angle)B and (angle)D is 180°. What is the sum of the measures of (angle)C and (angle)D ?

F. 45°

G. 90°

H. 180°

J. 270°

K. 360°

**April 2015**

8. Susan makes holiday wreaths for 4 hours every Saturday. It takes her 20 minutes to make a small wreath and 30 minutes to make a large wreath. This Saturday, Susan will make twice as many large wreaths as small wreaths. How many of the large wreaths will she make this Saturday?

F. 2

G. 3

H. 5

J. 6

K. 7

11. A system of equations is given below. What is the value of b in the (a,b) solution to the system?

a = 3b – 7

a = b + 1

A. -4

B. -3

C. -2

D. 2

E. 4

20. The product of 2 positive integers is 78. The greater integer is 1 more than twice the lesser integer. What is the greater integer?

F. 6

G. 7

H. 12

J. 13

K. 19

40. Let p and q be real numbers such that p + q = 4, -pq = 12, and p > q. What is p?

F. 2

G. 3

H. 4

J. 6

K. 8

**June 2015**

19. Which of the following (x,y) pairs is the solution for the system of equations x + 2y = 4 and

-2x + y = 7?

A. (-2,3)

B. (-1,2.5)

C. (1, 1.5)

D. (2,1)

E. (4,0)

**December 2015**

17. The Tully family and the Quan family ate dinner together at Eugenio’s Pasta Restaurant. An *order of pasta* comes in 1 of 2 sizes, large or small, and consists of 1 of 6 types of pasta and 1 of 5 types of sauce. The table below gives the number of large and small orders of pasta bought by each family, and the price each family paid for their orders of pasta (without tax and tip). [PICTURE]

The price is the same for each order of a given size. What is the price of a large order of pasta?

A. $1.50

B. $2.00

C. $2.50

D. $3.00

E. $5.00

35. Nichelle has 84 solid-colored disks that are either red, blue, or green. She lines them up on the floor and finds that there are 24 more red disks than green and 15 more green disks than blue. How many red disks does she have?

1. 10
2. 15
3. 25
4. 41
5. 49

57. Two numbers have a product of -48 and a sum of 0. What is the lesser of the 2 numbers?

A. -4rad(3)

B. -3rad(2)

C. 2(rad)3

D. 0

E. 3