UNIT 5 EXERCISES 6-10

CO-ORD GEO

2017B

6. The circle having $(0,0)$ and $(8,6)$ as the endpoints of a diameter intersects the x-axis at a second point. What is the x-coordinate of this point?

(A) $4\sqrt{2}$ **(B)** 6 **(C)** $5\sqrt{2}$ **(D)** 8 **(E)** $6\sqrt{2}$

2005B

7. What is the area enclosed by the graph of $|3x| + |4y| = 12$?

(A) 6 **(B)** 12 **(C)** 16 **(D)** 24 **(E)** 25

2016A

7. Which of these describes the graph of $x^2(x+y+1) = y^2(x+y+1)$?

(A) two parallel lines

(B) two intersecting lines

(C) three lines that all pass through a common point

(D) three lines that do not all pass through a common point

(E) a line and a parabola

2005B 8. For how many values of a is it true that the line $y = x + a$ passes through the vertex of the parabola $y = x^2 + a^2$?

(A) 0 **(B)** 1 **(C)** 2 **(D)** 10 **(E)** infinitely many

2006B 8. The lines $x = \frac{1}{4}y + a$ and $y = \frac{1}{4}x + b$ intersect at the point $(1, 2)$. What is $a + b$?

(A) 0 **(B)** $\frac{3}{4}$ **(C)** 1 **(D)** 2 **(E)** $\frac{9}{4}$

2014A 8. A customer who intends to purchase an appliance has three coupons, only one of which may be used:

Coupon 1: 10% off the listed price if the listed price is at least \$50

Coupon 2: \$20 off the listed price if the listed price is at least \$100

Coupon 3: 18% off the amount by which the listed price exceeds \$100

For which of the following listed prices will coupon 1 offer a greater price reduction than either coupon 2 or coupon 3?

(A) \$179.95 **(B)** \$199.95 **(C)** \$219.95 **(D)** \$239.95 **(E)** \$259.95

2017A 9. Let S be the set of points (x, y) in the coordinate plane such that two of the three quantities 3, $x + 2$, and $y - 4$ are equal and the third of the three quantities is no greater than this common value. Which of the following is a correct description of S?

(A) a single point **(B)** two intersecting lines

(C) three lines whose pairwise intersections are three distinct points

(D) a triangle **(E)** three rays with a common endpoint

2017B

9. A circle has center $(-10, -4)$ and radius 13. Another circle has center $(3, 9)$ and radius $\sqrt{65}$. The line passing through the two points of intersection of the two circles has equation $x + y = c$. What is c?

(A) 3 **(B)** $3\sqrt{3}$ **(C)** $4\sqrt{2}$ **(D)** 6 **(E)** $\frac{13}{2}$

1999

10. A sealed envelope contains a card with a single digit on it. Three of the following statements are true, and the other is false.

I. The digit is 1.

II. The digit is not 2.

III. The digit is 3.

IV. The digit is not 4.

Which one of the following must necessarily be correct?

(A) I is true. **(B)** I is false. **(C)** II is true. **(D)** III is true.

(E) IV is false.

2018A

10. How many ordered pairs of real numbers (x, y) satisfy the following system of equations?

$$x + 3y = 3$$
$$\big|\, |x| - |y| \,\big| = 1$$

(A) 1 **(B)** 2 **(C)** 3 **(D)** 4 **(E)** 8