1

$(3q+7r)(q-5r+3)$

Which of the following polynomials is equivalent to the expression above?

A) $4q+2t+3$

B) $3q^2-15qr+9q+7r$

C) $3q^2+6q-qr-12r^2+10r$

D) $3q^2+9q-8qr-35r^2+21r$

2

Ibrahim is x years old and Jamil is seven years younger. In five years, how old will Jamil be?

A. $x+2$

B. $x-2$

C. $2x-2$

D. $x+5$

3

$(2x-1)(x+5)$

The given expression is equivalent to ax^2+bx+c, where a, b and c are constants. What is the value of b?

4

If $p(x)=x^2-7x+5$ and $q(x)=-3x^3-7x^2+2x-5$, which of the following expressions is equal to the difference $p(x)-q(x)$?

A. $4x^3-9x+10$

B. $-3x^3-6x^2-5x$

C. $-3x^3-8x^2+9x-10$

D. $3x^3+8x^2-9x+10$

5

Which of the following is equivalent to $4a^2 - 9 + (2a - 3)(a - 1) + 3(2a - 3)$?

A. $(3a + 5)(2a - 3)$

B. $2(3a + 5)(2a - 3)$

C. $(2a - 3)(a + 5)$

D. $(2a - 3)(3a + 7)$

6

$25x^2 - tx + 4 = (5x - 2)(ax + b)$

In the equation above, a, b and t are constant numbers.

What is the value of t?

A. 5

B. -2

C. 20

D. -15

7

What is the coefficient of x^3 when $\frac{2}{5}x^3 + 2x^2 - 3$ is multiplied by $5x + \frac{2}{5}$?

A. 10

B. $\frac{4}{25}$

C. $\frac{54}{5}$

D. $\frac{254}{25}$

8

What is the resulting coefficient of x when -2x+3 is multiplied by -3x-2?

A. -9

B. -5

C. 5

D. 6

9

$5x^2 - 3(1 - x) - 2x(x + 5)$

Which of the following polynomials is equivalent to the expression above?

A) $3x^2 - 7x - 3$

B) $3x^2 + 7x - 3$

C) $5x^2 - 5x - 3$

D) $5x^2 - 9x - 3$

10

The difference between twice a number and two is three times the number. Which of the following represents the equation that can be used to solve the number?

A. $2x - 2 = 3(x - 2)$

B. $2 - 2x = 3$

C. $2x - 2 = 3x$

D. $2x - 3x = 3 + x$

1

Given $2x - 8 = 3y + 4$, what is the value of x if y equivalent to the square of 2?

A. 4

B. 8

C. 12

D. 24

2

$$x - 2 = \sqrt{x + 10}$$

Which of the following values of x is a solution to the equation above?

A) −1

B) 1

C) 4

D) 6

3

If $|-2b - 3| \leq 7$, how many possible integer values of b are there?

4

If $\frac{2a}{3b} = \frac{1}{5}$, what is the value of $\frac{b}{a}$?

5

If $3 < 2x + 7 \leq 15$, which of the following integers represents the smallest value for $x + 3$?

A. 1

B. 2

C. −2

D. −1

6

If $4x + 14y = -7$, what is the value of $-x - \frac{7}{2}y$?

A. $-\frac{7}{4}$

B. $\frac{7}{4}$

C. $-\frac{7}{2}$

D. $\frac{7}{2}$

1

$$2\left(\frac{x}{3}-\frac{1}{4}\right)-2x=\frac{2}{5}$$

What is the solution to the equation above?

A. $x=-\frac{9}{28}$

B. $x=-\frac{27}{40}$

C. $x=-\frac{27}{10}$

D. $x=-\frac{3}{40}$

2

$|2x+1|=5$

Which of the follwing is possible value of x?

A. 1

B. 0

C. -2

D. -3

3

$$5x^2-3(1-x)-2x(x+5)$$

Which of the following polynomials is equivalent to the expression above?

A) $3x^2-7x-3$

B) $3x^2+7x-3$

C) $5x^2-5x-3$

D) $5x^2-9x-3$

4

$-3<2x-y\leq 14$

Which point could be the solution for the inequality above?

A. $(0,3)$

B. $(4,-8)$

C. $(3,4)$

D. $(4,12)$

5

Jackie has two summer jobs. She works as a tutor, which pays \$12 per hour, and she works as a lifeguard, which pays \$9.50 per hour. She can work no more than 20 hours per week, but she wants to earn at least \$220 per week. Which of the following systems of inequalities represents this situation in terms of x and y, where x is the number of hours she tutors and y is the number of hours she works as a lifeguard?

A) $12x+9.5y\leq 220$
$x+y\geq 20$

B) $12x+9.5y\leq 220$
$x+y\leq 20$

C) $12x+9.5y\geq 220$
$x+y\leq 20$

D) $12x+9.5y\geq 220$
$x+y\geq 20$

6

$$(2x-1)(x+5)$$

The given expression is equivalent to ax^2+bx+c, where a, b and c are constants. What is the value of b?

Circles

$$(x-h)^2+(y-k)^2=r^2$$

Center $= (h, k)$

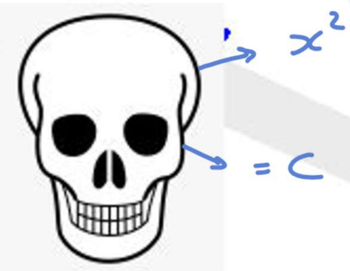
Radius $= \sqrt{r^2}$

$$(x-2)^2+(y+5)^2=16$$

Center $= (2, -5)$

Radius $= \sqrt{16} = 4$

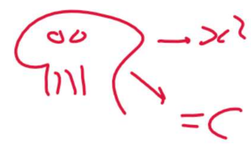
$$x^2+ax+y^2+by=c$$



Center $= \left(\frac{a}{-2}, \frac{b}{-2}\right)$

Radius $= \sqrt{\left(\frac{a}{-2}\right)^2+\left(\frac{b}{-2}\right)^2+c}$

$$x^2-4x+y^2+10y=7$$



Center $= \left(\frac{-4}{-2}, \frac{10}{-2}\right)$

Radius $= \sqrt{\left(\frac{-4}{-2}\right)^2+\left(\frac{10}{-2}\right)^2+7}$

1

$$(x-1)^2+(y-3)^2=16$$

The equation above forms a circle when graphed in the xy-plane. What is the radius of the circle?

$\sqrt{16}=4$

2

In the xy-plane, a circle has center (0, 0) and radius 2. Which of the following is an equation of this circle?

A) $2x^2+y^2=0$

B) $x^2+y^2=4$

C) $(x+2)^2+(y+2)^2=0$

D) $(x+2)^2+(y+2)^2=4$

$(x-0)^2+(y-0)^2$

x^2+y^2

3

$$x^2+20x+y^2+16y=-20$$

The equation above defines a circle in the xy-plane. What are the coordinates of the center of the circle?

A) $(-20,-16)$

B) $(-10,-8)$

C) $(10,8)$

D) $(20,16)$

x^2

$=C$

$(\frac{20}{-2},$

$(-10,$

4

What is the radius of the circle in the xy-plane with equation $x^2+y^2=25$?

5

Which of the following is an equation of a circle in the xy-plane with center $(3,-1)$ and a radius of 4?

A) $(x-3)^2+(y+1)^2=4$

B) $(x-3)^2+(y+1)^2=16$

C) $(x+1)^2+(y-3)^2=4$

D) $(x+3)^2+(y-1)^2=16$

6

In the xy-plane, the graph of $2x^2-6x+2y^2+2y=45$ is a circle. What is the radius of the circle?

A) 5

B) 6.5

C) $\sqrt{40}$

D) $\sqrt{50}$

7

In the xy-plane, what is the x-coordinate of the center of the circle with equation $x^2 - 6x + y^2 + 2y = -1$?

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

8

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

The equation of a circle in the xy-plane is shown above. What is the radius of the circle?

$r = \sqrt{\left(\frac{2}{-2}\right)^2 + \left(\frac{-8}{-2}\right)^2 + 8} = 5$

9

The graph of $x^2 - 4x + y^2 + 6y - 24 = 0$ in the xy-plane is a circle. What is the radius of the circle?

A) $2\sqrt{6}$

B) $\sqrt{11}$

C) $\sqrt{37}$

D) $\sqrt{76}$

$x + y = 8$

$x - y = 2$

Find x

Cancel y

$2x = \frac{10}{2}$

$x = 5$

Mode 5 1

$2x - y = 8$

$x - 2y = 1$

Find x

Cancel ---

a	b	c
2	-1	8
1	-2	1

$x + y = 8$

$x - y = 2$

Find y

Cancel x

$2y = \frac{6}{2}$

$y = 3$

$2x - y = 8$

$x - 2y = 1$

Find y

Cancel ---

1

$$x + y = 10$$
$$x - y = 8$$

If (x_1, y_1) is the solution to the system of equations above, what is the value of y_1?

A) 9

B) 2

C) 1

D) −1

2

$$x - 2y = 3$$
$$2x - 2y = 8$$

The ordered pair (x, y) satisfies the system of equations above. What is the value of x?

3

$$x + y = 21$$
$$x - 2y = -3$$

According to the system of equations above, what is the value of x?

A. 6

B. 8

C. 13

D. 15

4

$$2x - y = -4$$
$$2x + y = 4$$

For the solution of the system of equations above, what is the value of x?

A. −4

B. −2

C. 0

D. 2

5

$$2x - 3y = 22$$
$$-4x + 5y = -66$$

If (x, y) is the solution of the system above, what is the value of y?

1

$$4x + 3y = 11$$

$$3x + 2y = 7$$

Which ordered pair, (x, y), is the solution to the system of equations above?

A) $(5, -1)$

B) $(3, 1)$

C) $(1, 2)$

D) $(-1, 5)$

2

$$x + y = 7$$

$$x - y = 1$$

If (x, y) is the solution to the system of equations above, what is the value of x?

3

$$\begin{cases} -2x + 5y = 39 \\ 3x = -4y + 45 \end{cases}$$

From the system of equations above, what is the value of $2x + 7y$?

A. -57
B. 15
C. 39
D. 69

4

$$2x + y = 8$$

$$x + 4y = 11$$

If the x- and y-coordinates of a point in the xy-plane satisfy the system of equations above, what is the value of $6x + 10y$?

5

$$2x + y = 5$$

$$x + y = 3$$

If (x, y) is the solution to the system of equations above, what is the value of $3x + 2y$?

A) 1

B) 2

C) 8

D) 15

6

$$\begin{cases} \frac{2}{3}x + y = -3 \\ \frac{x}{3} + \frac{y}{2} = -3 \end{cases}$$

What is the solution of the above system?

A. $(-6,1)$
B. $(6,9)$
C. $(6,-7)$
D. $\emptyset$

1

A library sells new and used books. If, out of the total of 474, there are twice as many new books as old ones. How many new books are there in the library?

A. 316
B. 158
C. 352
D. 238

$n + U = 474$

$n = 2U$

$n - 2U = 0$

$n = 316$

$U = 158$

2

The total revenue of a magic show is 16,360 EGP. If each adult ticket to attend the show cost 12 EGP and each children ticket cost 2 EGP, then what is the number of tickets of each type sold if 3,480 tickets in all were sold?

A. 930 adult tickets and 2,550 children tickets
B. 940 adult tickets and 2,540 children tickets
C. 955 adult tickets and 2,525 children tickets
D. 960 adult tickets and 2,520 children tickets

$a + C = 3480$ Mode

$12a + 2C = 16360$

$a = 940$ $C = 2540$

3

A truck contains 15 identical boxes that are either red or blue.

The red box weighs 3 kg and the blue box weighs 2 kg.

If the total weight of the boxes is 36 kgs, what is the difference between the red and blue boxes in the truck?

A. 6
B. 9
C. 1
D. 3

4

Amina went to the flower shop and bought 2 roses and 5 daisies for 6 EGP. Lara bought from the same shop, 4 roses and 2 daisies for 4 EGP. How much should Ahmad pay to buy 2 roses and 2 daisies?

A. 1 EGP
B. 1.5 EGP
C. 2 EGP
D. 3 EGP