

- 1) Solve this equation.

$$\frac{1}{3}x + 1 + \frac{x+7}{2} = 4x + \frac{1}{2}$$

A $x = \frac{24}{19}$

B $x = \frac{21}{19}$

C $x = \frac{19}{24}$

D $x = \frac{19}{21}$

E $x = \frac{10}{19}$

- 2) Jerry has a newspaper delivery route each morning before school. The newspaper publisher pays Jerry \$11 a day plus \$0.20 for each paper delivered. If Jerry earns \$18.20 each morning, how many papers does he deliver? Which statement describes this number or papers?

A Less than 30 newspapers

B At least 30 newspapers, but less than 36 newspapers

C At least 42 newspapers, but less than 48 newspapers

D At least 36 newspapers, but less than 42 newspapers

E At least 48 newspapers, but less than 54 newspapers

- 3) Solve this equation for
- b
- .

$$\frac{1}{a} = \frac{1}{3} + \frac{1}{b}$$

A $b = \frac{a}{a-1}$

B $b = \frac{3a}{2}$

C $b = \frac{a-3}{3a}$

D $b = \frac{3a}{a-3}$

E $b = \frac{3a}{3-a}$

- 4) Joyce leaves her apartment and rides her bike due south at a rate of 12 miles per hour. Her roommate, Susan, leaves the apartment **half an hour later** jogging due north at a rate of 6 miles per hour. How long has Joyce been riding (t) when the girls are 45 miles apart?

	distance	rate	time
Joyce			t
Susan			

- A $2\frac{1}{2} hr.$
 B $2\frac{2}{3} hr.$
 C $7\frac{1}{2} hr.$
 D $3 hr.$
 E $6 hr.$
- 5) Find the product and write the answer in standard form. i is the imaginary unit.

$$(-3 + 7i)^2$$

- A -40
 B $58 - 21i$
 C $-40 - 42i$
 D $9 + 49i$
 E $58 - 42i$
- 6) Solve the equation below. Which choice gives one of the equation's solutions?

$$x(x - 3) - 5 = 0$$

- A $x = \frac{3}{2} - \frac{\sqrt{11}}{2}$
 B $x = \frac{3}{10} - \frac{\sqrt{22}}{10}i$
 C $x = \frac{3}{2} + \frac{\sqrt{29}}{2}$
 D $x = \frac{3}{2} - \frac{\sqrt{27}}{2}$
 E $x = \frac{3}{2} + \frac{\sqrt{11}}{2}i$

7) After completing the square, the equation $x^2 - 15x + 1 = 0$ becomes which?

A $(x - 15)^2 = 224$

B $\left(x - \frac{15}{2}\right)^2 = \frac{229}{4}$

C $\left(x - \frac{15}{2}\right)^2 = 224$

D $(x - 15)^2 = 226$

E $\left(x - \frac{15}{2}\right)^2 = \frac{221}{4}$

8) Elaine and Ellen can mow the family lawn together in 35 minutes (each using the same type of mower). If Elaine mows the lawn alone, it takes her 10 minutes longer than Ellen alone. If x represents the time for Ellen to mow the lawn alone (in minutes), which **simplified equation** could be used to solve for x ?

A $x^2 - 60x + 350 = 0$

B $x^2 - 60x - 350 = 0$

C $x^2 + 80x - 350 = 0$

D $x^2 - 60x - 10 = 0$

E $x^2 + 60x - 10 = 0$

9) The figure below has an area of 36 square units. Find the value of x and select the statement that is true.

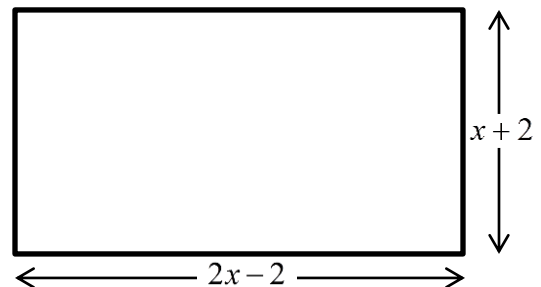
A x is between 0 and 1.2

B x is between 2.6 and 3.9

C x is between 1.2 and 2.6

D x is larger than 4.8

E x is between 3.9 and 4.8



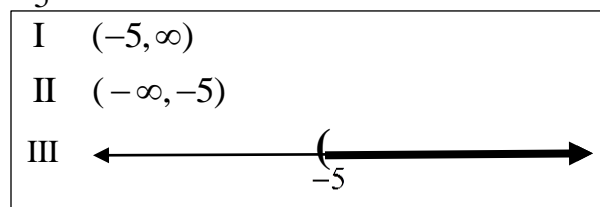
10) Solve: $|2x - 4| - 2 = 0$ Which statement describes the solution(s)?

- A There is one solution and it is 0.
- B There are two solutions, one positive and the other negative.
- C There are two solutions, one zero and the other positive.
- D There is no solution.
- E There are two solutions, both positive values.

11) Find **all** solutions of this equation. $x^4 - 29x^2 + 100 = 0$

- A $x = 5i, -5i, 2i, -2i$
- B $x = 5, -5, 2, -2$
- C $x = 5, 2$
- D $x = i, -i, 2, 5$
- E $x = 5, 2, 5i, 2i$

12) Solve the inequality below. Which of the following represent the solutions of this inequality? $\frac{4}{5}x + 8 > 4$



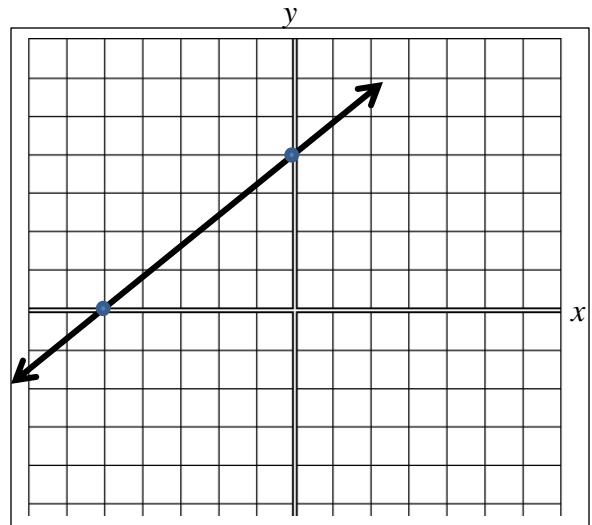
- A I only
- B II only
- C III only
- D I and III only
- E II and III only

- 13) Solve and write the solution using interval notation. $-6 < 2x - 4 \leq 2$
(Examine answers carefully.)

- A $[-3,1)$
- B $(-1,1]$
- C $(-1,3]$
- D $(-3,1]$
- E $(-3,3]$

- 14) Which statement is true?
Tick marks along each axis represent one unit.

- A The x -intercept is -5 and the y -intercept is 4 .
- B The x -intercept is -4 and the y -intercept is -5 .
- C The x -intercept is 5 and the y -intercept is 4 .
- D The x -intercept is -5 and the y -intercept is -4 .
- E The x -intercept is -4 and the y -intercept is 5 .



- 15) Find the midpoint of these two points: $(-3, \frac{1}{2})$, $(8, -\frac{3}{2})$

- A $(\frac{5}{2}, -\frac{1}{2})$
- B $(-\frac{11}{2}, 1)$
- C $(-\frac{5}{2}, -1)$
- D $(\frac{5}{2}, \frac{1}{2})$
- E $(\frac{11}{2}, -1)$