1) Jennifer and Sarah worked together and cleaned the house in 3 hours. When Sarah works alone it takes her 5 hours. How long would Jennifer spend cleaning the house if she worked alone?

        A. 1 hour 52 minutes

        B. 7 hours 30 minutes

        C. 7 hours 50 minutes

        D. 8 hours 15 minutes

        E. 1 hour 30 minutes

2) Solve: $x = 3 - 4x^2$

        A. $x = 1, -3$

        B. $x = 1, -\dfrac{3}{4}$

        C. $x = -1, 3$

        D. $x = \dfrac{4}{3}, -1$

        E. $x = -1, \dfrac{3}{4}$

3) Change this equation to quadratic form: $\dfrac{1}{x-2} = \dfrac{1}{x+1} + \dfrac{1}{6}$

        A. $x^2 - x - 2 = 6$

        B. $6x^2 - 6x - 12 = 0$

        C. $x^2 - x - 20 = 0$

        D. $x^2 - x - 8 = 0$

        E. $x^2 - 2x + 4 = 0$

4) The base of a triangle is four times as long as its height. If the area of the triangle is 18 square meters, how long is its base? Choose the equation that could be used to solve this problem. Let x represent the height of the triangle.

A. $4x^2 = 36$

B. $4x^2 = 18$

C. $x(x+4) = 18$

D. $2x^2 + 18 = 0$

E. $x^2 + 4x = 9$

5) $\left(5 + \sqrt{-9}\right)(2 + i)$

A. $13 + 11i$

B. $13 + 23i$

C. $1 + 23i$

D. $7 + 11i$

E. $13 - 11i$

6) Solve: $\sqrt{x+7} = 3\sqrt{x}$

A. $x = \dfrac{7}{2}$

B. $x = -4$

C. $x = \dfrac{3}{7}$

D. $x = \dfrac{7}{8}$

E. None of these.

7) A ride in a taxi costs $2.50 for the first 2 miles and $.50 for each additional mile. How far can Tony ride if the cost must be less than $12.75?

        A. 6 miles

        B. 20 miles

        C. 21 miles

        D. 25 miles

        E. 22 miles

8) Solve: $\left| \dfrac{2x-1}{3} \right| < 5$
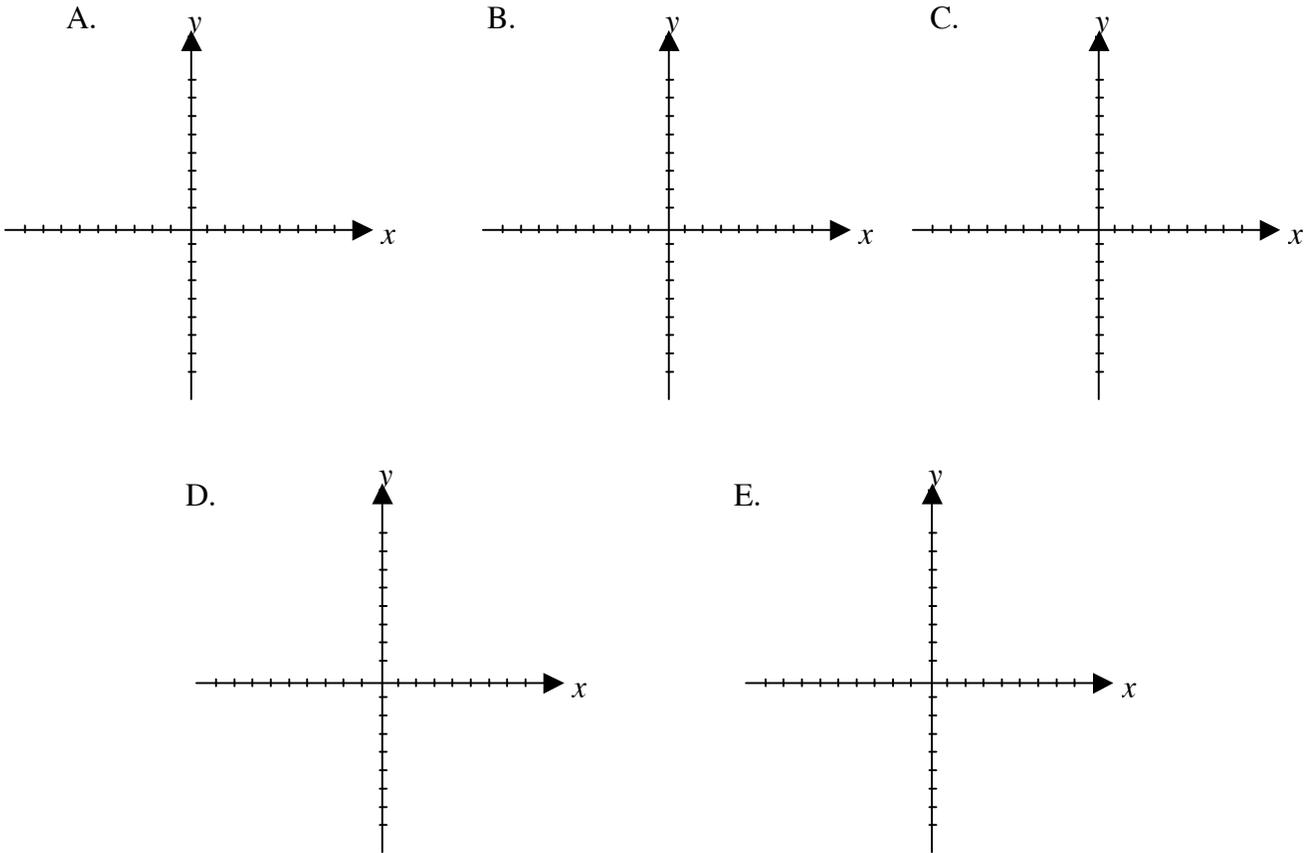
Express the solution set in interval notation.

        A. $(-7, 8)$

        B. $(-8, \infty)$

        C. $(-\infty, 8)$

        D. $(-8, 7)$

        E. $(-28, 32)$

9) Line l has a slope of $\dfrac{7}{3}$. Determine which, if any, of the three lines PQ, PR, and QR are perpendicular to line l.

P (2,8); Q (−1,1); R (6,−2)

        A. PQ

        B. QR

        C. PR

        D. PQ and QR

        E. None of these.

10) Choose the correct graph for $2x - y = 4$

A.

B.

C.

D.

E.

11) Tuition at State University was $8,000 during Tina's freshman year and it increased linearly such that three years later it was $12,500. Find the rate of growth in dollars per year.

           A. between 1200 and 2000

           B. between 2000 and 2800

           C. between 2800 and 3600

           D. between 3600 and 4200

           E. between 4200 and 5000

12) Find the slope and the y-intercept of the line determined by the given equation.

$x = -3(y-5)$

    A. $m = -3$ $(0, -15)$

    B. $m = \dfrac{3}{5}$ $(0, 5)$

    C. $m = -3$ $(0, -5)$

    D. $m = -\dfrac{1}{3}$ $(0, 5)$

    E. $m = -\dfrac{1}{3}$ $(0, 15)$

13) A copier cost \$1,300 when new and is expected to be worth \$620 after four years. Find its linear depreciation equation.

    A. $y = -620x + 1300$

    B. $y = -680x - 1300$

    C. $y = 4x + 680$

    D. $y = \dfrac{1}{4}x + 620$

    E. $y = -170x + 1300$

14) Find the x-intercepts of $y = x^2 + 2x - 24$.

    A. $(6, 0); (-4, 0)$

    B. $(8, 0); (-3, 0)$

    C. $(-2, 0); (12, 0)$

    D. $(2, 0); (-12, 0)$

    E. None of these.