1. What are the solutions to each equation?

   extraneous

   a. $\sqrt{9x+10} = x$

   $x^2 - 9x - 10$
   $(x-10)(x+1)$
   $x = 10 \quad \boxed{x = -1}$

   b. $10 = \sqrt{\frac{x}{2}} - 3$

   $13 = \sqrt{\frac{x}{2}} \cdot 13$
   $169 = \frac{x}{13}$
   $\boxed{507 = x}$

   c. $\frac{3}{x} = \sqrt{x-1} + 9$

   $\boxed{none}$

2. The time it takes to travel by jet to the Tokyo varies inversely with the speed at which the jet is traveling. If the time it take to get to Tokyo is 5 hours when the jet is traveling at 885 km/hr, how long will it take to travel to Tokyo when the jet is traveling at a speed of 548 km/hr?

   $t = \frac{k}{s} \longrightarrow 5 = \frac{k}{885}$

   $k = 4425 \quad t = \frac{4425}{s}$

   $t = \frac{4425}{548} \boxed{= 8.07 \text{ hours}}$

3. The equation $s = 2\sqrt{5x}$ can be used to estimate the speed, s, of a car in miles per hour, given the length in feet, x, of the tire marks it leaves on the ground. A car traveling at a speed of 90 miles per hour came to a sudden stop. According to the equation, how long would the tire marks be for this car?

   A. 355 feet
   B. 380 feet
   C. 405 feet ⟵ (circled)
   D. 430 feet

4. Solve:

   a. $\frac{4}{x} = 4x - 1$

   $4x^2 - x - 4$

   $\frac{1 \pm \sqrt{1+64}}{8} = \frac{1 \pm \sqrt{65}}{8} = \begin{array}{c} 1.13 \\ \text{or} \\ -.88 \end{array}$

   b. $\frac{-2}{x+3} = \sqrt{x-1}$

   none

5. Identify the type of variation (inverse, direct, or neither).
   a. The amount of gasoline *(inverse)* purchased as its price declines.
   b. The amount of money earned and the number of hours worked

   (direct)

6. Which equation is not an example of a direct variation?

   A. y = 2x
   B. y = -x
   C. 2y = 3x
   D. y – 4 = 2x ⟵ (circled)

7. Find the zeros:

8. Find the vertex of $y = (x-3)^2 - 2$

$$x^2 - 3 = 33$$

A. x=6, -6 $X = 6, -6$
B. x = $\sqrt{30}$
C. x = 18, -18
D. x = 1296

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28.   Solve for x: $2\sqrt{2x+4} = 8$

$$2x+4 = 16$$

X = ___6___

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29. Suppose y varies directly with x, and y= 16 when x = 8. Find y when x = 16.

$Y = Kx$ $16 = K \cdot 8$ $K = 2$ $Y = 2$

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30. Write the equation of the square root function that is compressed vertically by a factor of 1/3, shifted up 9, and left 2.

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31. The volume V of a gas varies inversely as the pressure P on it. If the volume is 240 cm^3 under pressure of 30kg/cm^2 , what pressure has to be applied to have a volume of 160 cm^3?