EPE 335

Practice Algebra Problems : Answers

1. $3x = 17 \Rightarrow x = \boxed{17/3}$

2. $\frac{x}{5} = 13 \Rightarrow x = 13 \cdot 5 = \boxed{65}$

3. $\frac{x}{3} + 21 = 14 \Rightarrow \frac{x}{3} = -7 \Rightarrow x = \boxed{-21}$

4. $2(5-x) = 10(20x-7)$

$10 - 2x = 200x - 70$

$80 = 202x \Rightarrow x = \frac{80}{202} = \boxed{0.396}$

5. $\left(\frac{15}{x} + 3\right)7 - 9x = 0$

$\frac{105}{x} + 21 - 9x = 0$

$105 + 21x - 9x^2 = 0$

$a = -9 \quad b = 21 \quad c = 105$

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$x = \frac{-21 \pm \sqrt{21^2 - 4(-9)(105)}}{2(-9)}$

$= \frac{-21 \pm \sqrt{4221}}{-18} = \frac{-21 \pm 64.969}{-18} = \begin{cases} -2.44 \\ 4.78 \end{cases}$ or

6. $5x^2 = 17 \Rightarrow x^2 = 17/5 \Rightarrow x = \pm\sqrt{17/5} = \boxed{\pm 1.84}$

7. $\frac{1}{4}x^2 - \frac{3}{5} = \frac{5}{7} \Rightarrow x^2 - \frac{12}{5} = \frac{20}{7} \Rightarrow x^2 = \frac{184}{35} \Rightarrow x = \boxed{\pm 2.29}$

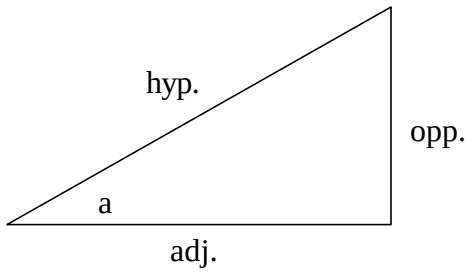
8. $\frac{3x}{8} - \frac{1}{3} = 15 \Rightarrow \frac{3x}{8} = \frac{46}{3} \Rightarrow x = \frac{368}{9} = \boxed{40.9}$

9 $d = \frac{1}{2}at^2 \Rightarrow t = \sqrt{2d/a}$ note time (t) is positive

10. $v_f^2 = 2ad \Rightarrow d = v_f^2/2a$

EPE 335
Practice Trigonometry Problems: Answers

1.



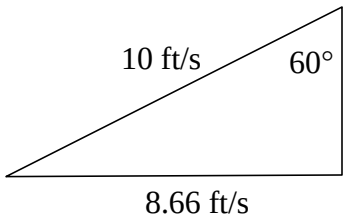
2. sin a = x/z cos a = y/z tan a = x/y

3. sin 30° = 0.500 sin 60° = 0.866 cos 30°= 0.866
   cos 60° = 0.500 tan 40° = 0.839 tan 60° = 1.7321

4. a = 44.4°

5. B = 27.5 C = 29.2 b = 70°

6.



7. 17.9 miles

8. 0.342 miles

9. v_x = 11.3 m/s, v_y = 4.1 m/s

10. 7.8 ft

11. 37.5 km

12. north 13.0 miles, east 10.9 miles

13. 1 mile