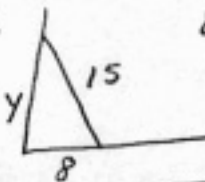


# 0850 Final Exam Review

43.   $8^2 + y^2 = 15^2$   
 $y^2 = 15^2 - 8^2$   
 $y^2 = 161$   
 $y = 12.689$   
 so  $y = 12.7 \rightarrow b$

41.  $\frac{\text{mile}}{\text{hour}} \rightarrow \frac{27.6}{2} = \frac{x}{7}$   
 $2x = 193.2$   
 $x = 96.6 \text{ miles} \rightarrow D$

38.  $s = -16t^2 + 25t + 15$   
 $s = 14$   
 $14 = -16t^2 + 25t + 15$   
 $0 = -16t^2 + 25t + 1$   
 $t = \frac{-25 \pm \sqrt{(25)^2 - 4(-16)(1)}}{2(-16)}$   
 $t = .039$  Discard  $t = 1.602 \text{ sec} \rightarrow A$

35.  $(2c + 5d)^2$   $c = -1, d = -3$   
 $(2(-1) + 5(-3))^2$   
 $(-2 + -15)^2 = (-17)^2$   
 $289 \rightarrow D$

33.  $\frac{x}{(x-7)(x+7)} + \frac{7}{x-7} = \frac{1}{x+7}$   
 $(x-7)(x+7) \left( \frac{x}{(x-7)(x+7)} \right) + (x-7)(x+7) \left( \frac{7}{x-7} \right) = (x-7)(x+7) \left( \frac{1}{x+7} \right)$   
 $x + 7x + 49 = x - 7$   
 $7x + 49 = -7$   
 $7x = -56$   
 $x = -8 \rightarrow D$

42.  $R(x) = 15x - x^2$   
 $x$  value of vertex:  $x = \frac{-b}{2a} = \frac{-15}{2(-1)} = 7.5$   
 $y$  value of vertex:  $y = R(7.5) = 15(7.5) - 7.5^2 = \$56.25$   
 so max Revenue is  $\$56.25 \rightarrow A$

40.  $s = -16t^2 + v_0t + s_0$   
 $s = 0, s_0 = 100, v_0 = 0$   
 $0 = -16t^2 + 100$   
 $16t^2 = 100$   
 $t^2 = \frac{100}{16}$   
 $t = \frac{10}{4} = 2.5 \text{ sec} \rightarrow C$

37.  $f(x) = -3x^2 + 2x - 27$   
 $f(2) = -3(2)^2 + 2(2) - 27$   
 $f(2) = -3(4) + 4 - 27$   
 $f(2) = -12 + 4 - 27$   
 $f(2) = -35 \rightarrow B$

34.  $\frac{x-2}{x+3} = \frac{x+1}{x+8}$   
 $(x-2)(x+8) = (x+3)(x+1)$   
 $x^2 + 6x - 16 = x^2 + 4x + 3$   
 $6x - 16 = 4x + 3$   
 $2x - 16 = 3$   
 $2x = 19$   
 $x = \frac{19}{2} \rightarrow A$

31.  $5x^2 + 4 = 11$   
 $5x^2 = 7$   
 $x^2 = \frac{7}{5}$   
 $x = \pm \sqrt{\frac{7}{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}}$   
 $x = \pm \frac{\sqrt{35}}{5} \rightarrow C$

39. Janet's rate:  $\frac{1}{5}$   
 Charles's rate:  $\frac{1}{7}$   
 Combined rate:  $\frac{1}{x}$   
 $\frac{1}{5} + \frac{1}{7} = \frac{1}{x}$   
 $\frac{12}{35} = \frac{1}{x}$   
 $12x = 35$   
 $x = 2\frac{1}{2} \text{ hr} \rightarrow A$

36.  $(3, 4), (3, -8)$   
 $d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$   
 $d = \sqrt{(3-3)^2 + (4+8)^2}$   
 $d = \sqrt{0^2 + 12^2} = \sqrt{144} = 12 \rightarrow B$

32.  $\frac{3}{b-2} - \frac{1}{b-1} = 0$   
 $(b-2)(b-1) \left( \frac{3}{b-2} \right) - (b-2)(b-1) \left( \frac{1}{b-1} \right) = 0$

$3b - 3 - b + 2 = 0$   
 $2b - 1 = 0$   
 $2b = 1$   
 $b = \frac{1}{2} \rightarrow C$

30.  $36g^2 + 25 = 60g$   
 $36g^2 - 60g + 25 = 0$   
 $(6g - 5)^2 = 0$   
 $6g - 5 = 0$   
 $6g = 5$   
 $g = \frac{5}{6} \rightarrow A$