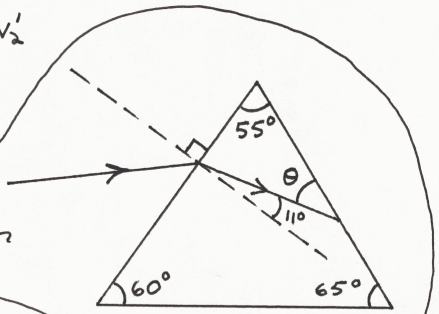
MATH PROBLEMS VIDEO

1) Consider m_1, m_2, v_1, v_2 known. Combine the following equations and solve for v_1' and v_2'.

$$m_1v_1 + m_2v_2 = m_1v_1' + m_2v_2'$$
$$v_1 - v_2 = -v_1' + v_2'$$

2) Solve for x: $(x-2)(x+5) = 3$

3) Find the angle θ in the diagram at right.



4) Solve for y: $r = \sqrt{x^2+y^2}$

5) Solve for b: $y = \dfrac{a}{b^2+r^2}$

6) Solve for t: $x = x_0 + v_0t + \frac{1}{2}at^2$

7) Solve for x: $\dfrac{1}{b-x} = a$

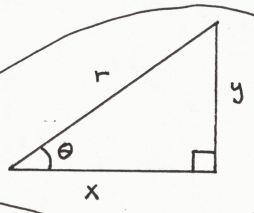
8) Solve for x: $\dfrac{a}{bx^{1/4}} = 1$

9) Solve for x: $ax - 2b = 5x + 3$

10) Combine the following equations to eliminate x and solve for t:

$$x - x_0 = \frac{1}{2}at^2$$
$$x = v_0t$$

11) Express θ in terms of x and r:



12) Simplify this quantity: $\dfrac{10^3(10^{-5})^2}{10^{-3}(10^4)}$

13) Calculate the volume of a right circular cylinder of length 2.3 m and face area .15 m^2.

14) Solve for both x and y: $8x - 3y = 7$, $11x + 2y = 9$

15) Solve for t: $t^2 + 2.8 = 12t$

16) Solve for x: $4(x-3) = 2(7-2x)$

17) Solve for x and t: $x = x_0 + v_{ox}t$, $0 = v_{oy} + at$

18) Solve for o (the letter "o")

$$\frac{1}{f} = \frac{1}{o} + \frac{1}{i}$$

19) Solve for r: $y = 2\frac{a}{b^2 + r^2}$

20) $ax + bx = x + c$ Solve for x.

21) $r^2 = \frac{1}{x+a} + 3$ Solve for x.

22) $F = \frac{C}{r^2}$

F' same as F but with r replaced by r' where $r' = 2r$

Express F' as some number times F.