YOUNG'S DOUBLE SLIT INTERFERENCE PATTERN: WAVES Purpase: To observe the interference of light Procedure: · Light is allowed to pass through two slits S, and S2. · Diffraction occurs as shown below · This causes light from one slit to interfere with the light from the other slit Observation: · Bright and dark spots, also called finger, are seen on the screen · Bright fringer will be observed due to constructive interference . Dark fringes will be due to destructive interference acrests screen second bright fringe (path difference = 22) first bright fringe (path difference = 12) first dark fringe (path difference = 1/2) central bright tringe (path difference = 0x) first bright fringe (path difference = 1%) second bright tringe (path difference = 1%) second bright fringe (path difference = 2%) SIMPLIFIED VERSION of the diagram An interference pattern is observed on the screen wondergth \otimes · wavelength =) · Slit seperation = a (distance b/w two slits S1 & S2) · distance b/w double slit s screen = D $x = \lambda \cdot D$ · fringe Seperation = x (distance b/w two successive bri fringes / dark fringes) bright

Typical values for 1, D, and a so that an interference pattern can be
Typical values for 1, D, and a so that an interference pattern can be observed on the screen?
learn the following typical nature:
lean the following typical values:
red violet
x = 400nm to 700nm (4x10-m to 7x10-m)
D = 1m to 3m
2 2 10 SW
a = 0.5mm to 1.5mm
5 1 Day
Example Question:
a calculate the distance between two successive bright fringer my
the following values:
1 - 5 × 10 - 7
λ = S × 10 m, D = 1.2m, a = 0.75mm
$x = D \cdot \lambda$
^
$x = (5 \times 10^{-7})(1.2)$
(0.75 × 10 ⁻⁸)
x = 0.0008m or 8 x 10-4m or 0.8mm
X 2 0.000 W W & X 10 m W 0.0 MM
a Calculate the distance between two successive dark fringes
It is equal to x
It is equal to x. The distance between two bright fringes is equal to the distance between two successive dark fringes
The distance between two longues to equal to the distance between
two successive dark tringer
1. Calculate the distance between a bright fringe and the next dark
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tringe.
2x, because dark fringer occur exactly in the middle of two successive
bright triven, and vice versa
The state of the s