

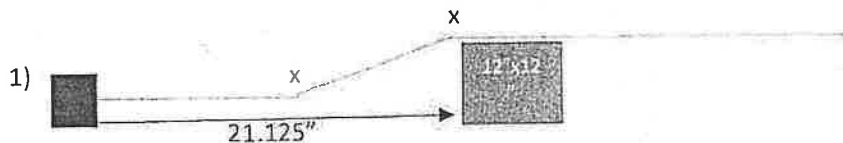
svonavec-SR EE-period 5-8 - offsite learning packet day 9

ELECTRICITY EMT CALCULATION WORKSHEET

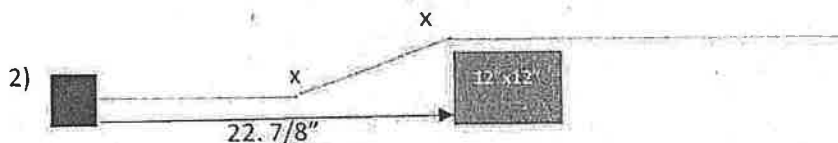
Name _____

Date _____

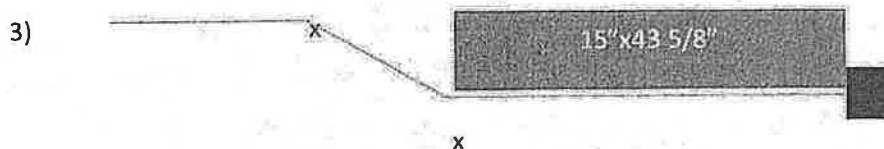
Calculate the following bends



- What is the actual offset distance needed _____
- What is the total shrinkage given a 22.5 degree bend _____
- What distance will the first Mark be from the starting point _____
- What is the distance between marks _____



- What is the actual offset distance needed _____
- What is the total shrinkage given a 30 degree bend _____
- What distance will the first Mark be from the starting point _____
- What is the distance between marks _____



- What is the actual offset distance needed _____
- What is the total shrinkage given a 45 degree bend _____
- What distance will the first Mark be from the starting point _____
- What is the distance between marks _____

BENFIELD OFFSET FORMULA		
OFFSET DEPTH COL 1	X CONSTANT MULTIPLIER COL 2	= DISTANCE BETWEEN BENDS COL 3
ANGLE	MULTIPLIER	SHRINK PER INCH OF OFFSET DEPTH
10° x 10°	6	1'16" per inch
22½° x 22½°	2.6	3'16" per inch
30° x 30°	2	1'4" per inch
45° x 45°	1.4	3'8" per inch
60° x 60°	1.2	1'2" per inch

REMEMBER THESE KEY FORMULAS

1) shrinkage X offset Height + distance to obstacle = 1st Mark

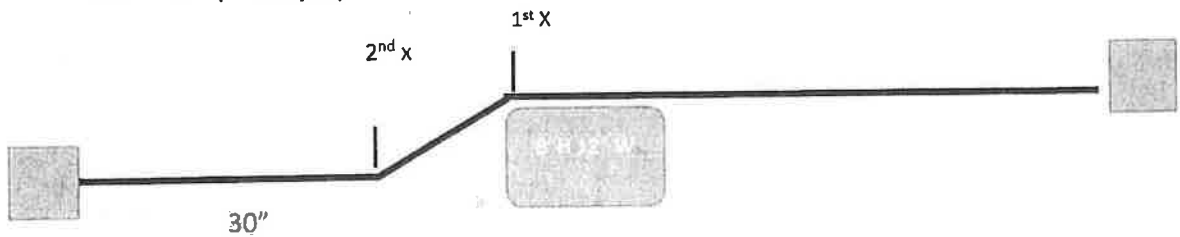
(ex) (1/4 x 12 = 3) (3 + 32 = 35) 35" = 1st Mark

2) Constant multiplier X offset height = 2nd Mark

(ex) (2.0 x 12 = 24") measure 24" from the 1st mark back towards your starting point and make the 2nd mark

Steps to bending offsets

- 1) Measure from the starting point to the obstruction or distance that you are trying to overcome (Example)



- 2) Use the shrink amount to add total shrinkage to the measurement stated in step # 1 (Example)

Shrink for 30 degree offset= $\frac{1}{4}$ inch per inch of rise

Rise= 8"

$\frac{1}{4}$ (.25) x 8 = 2 inches total shrink

2 " + 30" = 32" total length to 1st mark

- 3) Use the constant multiplier to find the distance from the 1st X to the 2nd X (Example)

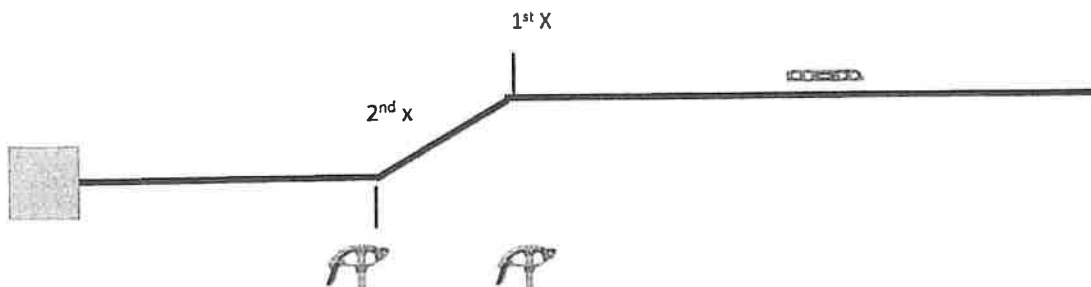
Multiplier for a 30 degree offset = 2.0 per inch of rise

Rise= 8"

$2.0 \times 8" = 16"$ from 1st X to 2nd X

- 4) Measure from 1st X back towards starting point and make 2nd X

5. Place the arrow of the bender on the 1st X with the foot facing the 2nd X and bend



- 6) Turn the pipe 180 degrees, place arrow on the 2nd X with the bender head facing the same direction and bend. After bending, make sure pipe is level and doesn't have dog legs. Cut to length that is required.

