

101-199

821053

NORTH FORK

"Rite in the Rain"

WEATHERPROOF
LEVEL BOOK

No. 310

Sample log book
NG

NEVILLE CROSBY INC.

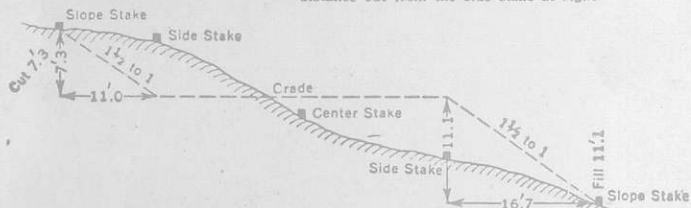
325 WEST SIXTH AVENUE • VANCOUVER, B.C. V5Y1L1

TELEPHONE 604/USE-4343 TELEX 04-507762

MINING, FORESTRY AND DRAFTING SUPPLIES

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING Roadway of any Width. Side Slopes 1½ to 1.

In the figure below: opposite 7 under "Cut or Fill" and under .3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under .1 read 16.7, the distance out from the side stake at right.



| Cut or Fill | Distance out from Side or Shoulder Stake | | | | | | | | | | Cut or Fill |
|----------------|--|------|------|------|------|------|------|------|------|------|----------------|
| | 0 | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | |
| 0 | 0.0 | 0.2 | 0.3 | 0.5 | 0.6 | 0.8 | 0.9 | 1.1 | 1.2 | 1.4 | 0 |
| 1 | 1.5 | 1.7 | 1.8 | 2.0 | 2.1 | 2.3 | 2.4 | 2.6 | 2.7 | 2.9 | 1 |
| 2 | 3.0 | 3.2 | 3.3 | 3.5 | 3.6 | 3.8 | 3.9 | 4.1 | 4.2 | 4.4 | 2 |
| 3 | 4.5 | 4.7 | 4.8 | 5.0 | 5.1 | 5.3 | 5.4 | 5.6 | 5.7 | 5.9 | 3 |
| 4 | 6.0 | 6.2 | 6.3 | 6.5 | 6.6 | 6.8 | 6.9 | 7.1 | 7.2 | 7.4 | 4 |
| 5 | 7.5 | 7.7 | 7.8 | 8.0 | 8.1 | 8.3 | 8.4 | 8.6 | 8.7 | 8.9 | 5 |
| 6 | 9.0 | 9.2 | 9.3 | 9.5 | 9.6 | 9.8 | 9.9 | 10.1 | 10.2 | 10.4 | 6 |
| 7 | 10.5 | 10.7 | 10.8 | 11.0 | 11.1 | 11.3 | 11.4 | 11.6 | 11.7 | 11.9 | 7 |
| 8 | 12.0 | 12.2 | 12.3 | 12.5 | 12.6 | 12.8 | 12.9 | 13.1 | 13.2 | 13.4 | 8 |
| 9 | 13.5 | 13.7 | 13.8 | 14.0 | 14.1 | 14.3 | 14.4 | 14.6 | 14.7 | 14.9 | 9 |
| 10 | 15.0 | 15.2 | 15.3 | 15.5 | 15.6 | 15.8 | 15.9 | 16.1 | 16.2 | 16.4 | 10 |
| 11 | 16.5 | 16.7 | 16.8 | 17.0 | 17.1 | 17.3 | 17.4 | 17.6 | 17.7 | 17.9 | 11 |
| 12 | 18.0 | 18.2 | 18.3 | 18.5 | 18.6 | 18.8 | 18.9 | 19.1 | 19.2 | 19.4 | 12 |
| 13 | 19.5 | 19.7 | 19.8 | 20.0 | 20.1 | 20.3 | 20.4 | 20.6 | 20.7 | 20.9 | 13 |
| 14 | 21.0 | 21.2 | 21.3 | 21.5 | 21.6 | 21.8 | 21.9 | 22.1 | 22.2 | 22.4 | 14 |
| 15 | 22.5 | 22.7 | 22.8 | 23.0 | 23.1 | 23.3 | 23.4 | 23.6 | 23.7 | 23.9 | 15 |
| 16 | 24.0 | 24.2 | 24.3 | 24.5 | 24.6 | 24.8 | 24.9 | 25.1 | 25.2 | 25.4 | 16 |
| 17 | 25.5 | 25.7 | 25.8 | 26.0 | 26.1 | 26.3 | 26.4 | 26.6 | 26.7 | 26.9 | 17 |
| 18 | 27.0 | 27.2 | 27.3 | 27.5 | 27.6 | 27.8 | 27.9 | 28.1 | 28.2 | 28.4 | 18 |
| 19 | 28.5 | 28.7 | 28.8 | 29.0 | 29.1 | 29.3 | 29.4 | 29.6 | 29.7 | 29.9 | 19 |
| 20 | 30.0 | 30.2 | 30.3 | 30.5 | 30.6 | 30.8 | 30.9 | 31.1 | 31.2 | 31.4 | 20 |
| 21 | 31.5 | 31.7 | 31.8 | 32.0 | 32.1 | 32.3 | 32.4 | 32.6 | 32.7 | 32.9 | 21 |
| 22 | 33.0 | 33.2 | 33.3 | 33.5 | 33.6 | 33.8 | 33.9 | 34.1 | 34.2 | 34.4 | 22 |
| 23 | 34.5 | 34.7 | 34.8 | 35.0 | 35.1 | 35.3 | 35.4 | 35.6 | 35.7 | 35.9 | 23 |
| 24 | 36.0 | 36.2 | 36.3 | 36.5 | 36.6 | 36.8 | 36.9 | 37.1 | 37.2 | 37.4 | 24 |
| 25 | 37.5 | 37.7 | 37.8 | 38.0 | 38.1 | 38.3 | 38.4 | 38.6 | 38.7 | 38.9 | 25 |
| 26 | 39.0 | 39.2 | 39.3 | 39.5 | 39.6 | 39.8 | 39.9 | 40.1 | 40.2 | 40.4 | 26 |
| 27 | 40.5 | 40.7 | 40.8 | 41.0 | 41.1 | 41.3 | 41.4 | 41.6 | 41.7 | 41.9 | 27 |
| 28 | 42.0 | 42.2 | 42.3 | 42.5 | 42.6 | 42.8 | 42.9 | 43.1 | 43.2 | 43.4 | 28 |
| 29 | 43.5 | 43.7 | 43.8 | 44.0 | 44.1 | 44.3 | 44.4 | 44.6 | 44.7 | 44.9 | 29 |
| 30 | 45.0 | 45.2 | 45.3 | 45.5 | 45.6 | 45.8 | 45.9 | 46.1 | 46.2 | 46.4 | 30 |
| 31 | 46.5 | 46.7 | 46.8 | 47.0 | 47.1 | 47.3 | 47.4 | 47.6 | 47.7 | 47.9 | 31 |
| 32 | 48.0 | 48.2 | 48.3 | 48.5 | 48.6 | 48.8 | 48.9 | 49.1 | 49.2 | 49.4 | 32 |
| 33 | 49.5 | 49.7 | 49.8 | 50.0 | 50.1 | 50.3 | 50.4 | 50.6 | 50.7 | 50.9 | 33 |
| 34 | 51.0 | 51.2 | 51.3 | 51.5 | 51.6 | 51.8 | 51.9 | 52.1 | 52.2 | 52.4 | 34 |
| 35 | 52.5 | 52.7 | 52.8 | 53.0 | 53.1 | 53.3 | 53.4 | 53.6 | 53.7 | 53.9 | 35 |
| 36 | 54.0 | 54.2 | 54.3 | 54.5 | 54.6 | 54.8 | 54.9 | 55.1 | 55.2 | 55.4 | 36 |
| 37 | 55.5 | 55.7 | 55.8 | 56.0 | 56.1 | 56.3 | 56.4 | 56.6 | 56.7 | 56.9 | 37 |
| 38 | 57.0 | 57.2 | 57.3 | 57.5 | 57.6 | 57.8 | 57.9 | 58.1 | 58.2 | 58.4 | 38 |
| 39 | 58.5 | 58.7 | 58.8 | 59.0 | 59.1 | 59.3 | 59.4 | 59.6 | 59.7 | 59.9 | 39 |
| 40 | 60.0 | 60.2 | 60.3 | 60.5 | 60.6 | 60.8 | 60.9 | 61.1 | 61.2 | 61.4 | 40 |

092H/15

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"Rite in the Rain"
WEATHERPROOF

a product of

J. L. DARLING CORPORATION
TACOMA, WASHINGTON 98421 U.S.A.

| Sample # | (Line) Lat | (STA) Dep | Rock Type | M |
|----------|---------------|--------------|----------------------|-----|
| NF-101 | | | 2 Dac. tuff | |
| NF-102 | | | 6 chert. | |
| NF-103 | | | 2 Dac. tuff | |
| NF-104 | | | 1 maf. tuff | |
| NF-105 | | | 2 Dac. tuff | |
| NF-106 | | | 2 Dac. tuff | |
| NF-107 | | | 2 Dac. tuff | |
| NF-108 | | | 2 Dac. tuff | |
| NF-109 | | | 2 Dac. tuff | tra |
| NF-110 | | | 7 Biot./chl. schist. | |
| NF-111 | | | 6 meta chert. | |
| NF-112 | | | 7 Biot./chl. schist. | |
| NF-113 | | | 1 meta. volcanic. | |
| NF-114 | | | 1 maf. meta volc. | |
| NF-115 | | | 1 maf. meta volc. | |
| NF-116 | | | 1 maf. meta volc. | |
| NF-117 | | | 1 maf. meta volc. | |
| NF-118 | | | 1 maf. meta volc. | |
| NF-119 | | | 1 maf. meta volc. | |
| NF-120 | | | 1 maf. meta volc. | |
| NF-121 | | | 1 maf. meta volc. | |
| NF-122 | | | 1 maf. meta volc. | |
| NF-123 | | | 4 Diabase intr.? | |
| NF-124 | | | 1 maf. meta volc. | |

Min

Alt

Date

Remarks

ser + chl.

29/07/83

schist.

29/07/83

ser. + chl.

29/07/83

29/07/83

chl. schist.

sericite

29/07/83

schist.

ser. + carb.

29/07/83

chl. schist.

ser.

29/07/83

schist.

ser + chl.

29/07/83

schist.

trace

ser.

29/07/83

chl. schist.

31/07/83

31/07/83

31/07/83

31/07/83

31/07/83

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31/07/83

31/07/83

31/07/83

chl/amph. schist.

31/07/83

31/07/83

31/07/83

| Sample # | Lat (line) | Dep (Sta) | Rock Type | Min. |
|----------|---------------|--------------|-----------------|------|
| NF-125 | | 1 | maf. meta volc. | |
| NF-126 | | 1 | maf. volc. | |
| NF-127 | | 1 | maf. meta volc. | |
| NF-128 | | 6 | meta sed? | |
| NF-129 | | 1 | maf. meta volc. | |
| NF-130 | | 1 | maf. meta volc | |
| NF-131 | | 1 | maf. meta volc. | |
| NF-132 | | 1 | maf. meta volc. | |
| NF-133 | | 1 | maf. meta volc. | |
| NF-134a | | 1 | maf. meta volc. | |
| NF-134b | | 1 | maf. meta volc. | |
| NF-135 | | 1 | maf. tuff | |
| NF-136 | | 1 | maf. tuff | |
| NF-137 | | 1 | meta volc. | |
| NF-138 | | 1 | maf. meta volc. | |
| NF-139 | | 1 | maf. c. | |
| NF-140 | | | | |
| NF-141 | | | volc. | |
| NF-142 | | 1 | maf. c. | |
| NF-143 | | 4 | gabbro? | |
| NF-144 | | 1 | maf. | |
| NF-144a | | 1 | maf. | |
| NF-145 | | 1 | maf. | |
| NF-146 | | 4 | gabbro? | |

| Alteration | Date | Remarks |
|------------|----------|-----------------------|
| | 01/08/83 | |
| | 01/08/83 | |
| | 01/08/83 | |
| epidote? | 01/08/83 | silica veins. |
| | 01/08/83 | |
| | 01/08/83 | |
| | 01/08/83 | |
| | 01/08/83 | |
| | 01/08/83 | amphibole. |
| | 01/08/83 | actinolite. |
| | 01/08/83 | |
| | 01/08/83 | |
| | 01/08/83 | epidote |
| | 02/08/83 | chl. schist. |
| | 02/08/83 | chl. gtz, fp. schist |
| | 02/08/83 | chl. gtz. fp. schist. |
| | 02/08/83 | chl. gtz. fp. schist. |
| chlorite. | 02/08/83 | |
| | 02/08/83 | chl. fp. schist. |
| | 02/08/83 | |
| | 02/08/83 | chl (+ Biot) schist. |
| | 02/08/83 | |

| Sample # | Lat (line) | Rep. (sta) | Rock Type | Min. |
|---|------------|------------|------------------------|--------|
| NF-147 | | 4 | gabbro | |
| NF-148 | | 4 | gabbro | |
| NF-149 | | 4 | hb. gabbro. | |
| NF-150 | | 4 | gabbro | |
| samples 101 - 150 sent to lab - 03/08/83. | | | | |
| NF-151 | | 1 | meta volc. | |
| 152 | | 4 | diabase | |
| 153 | | 1 | pillow basalt. | |
| 154 | | 4 | diabase | |
| 155 | | 1 | meta volc? | |
| 156 | | 2 | int? - meta volc? | |
| 157 | | 1 | pillow basalt. | |
| 158 | | 1 | pillow basalt. | |
| 159 | | 1 | pillow basalt. | |
| 160 | | 1 | pillow basalt. | |
| 161 | | 1 | pillow basalt. | |
| 162 | | 1 | ? pillow basalt/gabbro | |
| 163 | | 4 | gabbro | |
| 164 | | 4 | ? lucco / gabbro | |
| 165 | | 4 | gabbro | 2% po |
| 166 | | 4 | gabbro. | |
| 167 | BEAR CRK | 2 | INT-MAF TUFF | - |
| 168 | " | 7 | HORNFELS | - |
| 169 | " | 1 | INT. MAF TUFF? | - |
| 170 | | 1 | META VOLC. | 1-2 Pg |

| Alteration | Date | Remarks |
|------------|----------|-----------|
| | 02/08/83 | |
| | 02/08/83 | |
| | 02/08/83 | |
| | 02/08/83 | |
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| | " | |
| | 03/8/8 | Bi + AMPH |
| | " | - |
| | " | - |
| | " | - |

| SAMPLE | LAT | DEP | ROCK TYPE | MIN. |
|--------|-------------|----------------|-----------------------|-------|
| 171 | BEAR CRK | 1 | PIL. BASALT | - |
| 172 | " | 1 | MAF. META VOLC. | - |
| 173 | | 1 | " | TR Py |
| 174 | | 1 | " | " |
| 175 | | 4 | GABBRO | TR Po |
| 176 | | 1 | MAF. META VOLC. | TR Py |
| 177 | | 1 | " | - |
| 178 | | 1 | " | - |
| 179 | | 1 | " | 1% Po |
| 180 | BEAR CRK | 2 | INT-MAF TUFF | TR Py |
| 181 | " | 2 | " | " |
| 182 | " | 2 | " | - |
| 183 | " | 2 | " | TR Py |
| 184 | " | 2 | " | - |
| 185 | " | 2 1 | MAF TUFF | - |
| 186 | BEAR CREEK | 3 | ? FELS META VOLC. | - |
| 187 | " | 3 | ? " | - |
| 188 | " | 3 | ? CHL, BIO, MUS. SCH. | - |
| 189 | COGBURN CRK | 1 | MAF TUF | - |
| 190 | " | 1 | CHL, AMPH SCH. | - |
| 191 | " | 1 | CHL, MUS, B i; SCH | - |
| 192 | " | 1 | CHL AMPH SCH. | - |
| 193 | " | 1 | MAFIC METAVOLL | - |
| 194 | " | | mafic. | - |

ALT.

DATE

REMARKS

| | | |
|---------|---------|---------------------|
| — | 83/8/8 | — |
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| — | 83/8/9 | DIORITE? |
| — | " | GAB? |
| — | " | DIORITE? |
| — | " | — |
| — | " | — |
| FC CARB | 83/8/10 | HORNFEELS |
| TALCOUS | " | — |
| " | " | — |
| — | " | — |
| CHL. | 83/8/12 | — |
| — | " | POSS PYROXONITE |
| — | " | SOME TUFF COMPONENT |
| — | 83/8/13 | META VOLC. |
| — | " | CHL, AMPH, SCH. |
| — | " | — |

| SAMPLE # | LAT | DEP | ROCK TYPE | MIN |
|----------|-----|-----|------------------------------------|-------|
| NF 194 | | 1 | MAFIC VOLC. | - |
| 195 | | 1 | MAFIC META VOL. | - |
| 196 | | 1 | " | - |
| 197 | | 4 | GABBRO ? | - |
| 198 | | 4 | " ? | - |
| 199 | | 1 | CHL. AMPH SCH. | - |
| 200 | | 1 | MAFIC META VOL. | - |
| 401 | | 1 | SHEARED BX | - |
| 402 | | 1 | MAFIC META VOLC. SHEARED GABBRO | - |
| 403 | | 4 | ? MAF. META VOL. | - |
| 404 | | 1 | CHL. AMPH SCH. | - |
| 405 | | 1 | " | - |
| 406 | | 1 | " | - |
| 407 | | 6 | WACKACIOUS TUFF | TR P4 |
| 408 | | 6 | META SED TUFF? | - |
| 409 | | 1 | CHL AMPH SCH. | - |
| 410 | | 1 | " | - |
| 411 | | 1 | " | - |
| 412 | | 1 | MAFIC META VOL. | - |
| 413 | | 1 | MAF VOL. | - |
| 414 | | 1 | CHL AMPH SCH. | - |
| 415 | | 1 | BASIC TUFF | - |
| 416 | | 1 | MAF VOL. | - |
| 417 | | 1 | MAF META VOL. | - |

SAMPLES SENT

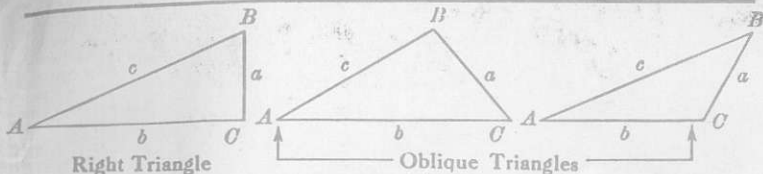
| ALT. | DATE | REMARKS |
|---------|---------|------------------------|
| — | 83/8/13 | — |
| — | " | CHL. AMPH SCHIST |
| — | " | " |
| — | " | INTR. ? |
| — | " | FINELY X LINE |
| — | " | SHEARED GABBRO? |
| — | " | WELL SHEARED |
| — | " | 83/ |
| — | " | OR INT BICPORPHOBLASTS |
| — | " | — |
| — | " | GAB OR MAFIC META VOL. |
| — | " | ? GABBRO |
| — | " | ? GABBRO |
| | 83/8/15 | |
| — | " | — |
| — | " | SHEARED GAB. |
| — | " | MAFIC META VOLC. |
| — | " | — |
| — | " | CHL AMPH SCHIST |
| — | " | — |
| — | " | MAF META VOL |
| — | " | INTERBRODED E SEDS. |
| — | " | BI, CHL, QZ SCH. |
| — | " | — |
| — | " | CHL, AMPH SCH. |
| 83/8/17 | | |

| SAMPLE# | LAT | DEP | ROCK TYPE |
|---------|-----|-----|------------------------------|
| NF-418 | | 6 | META SED: HB-Q-Fp-SER-B SCH. |
| 419 | | 4 | META GABBRO |
| 420 | | 4 | META DIORITE |
| 421 | | 4 | " " |
| 422 | | 4 | GABBRO |
| 423 | | 4 | META GABBRO |
| 424 | | 1 | MAFIC META VOL |
| 425 | | 1 | " " " |
| 425A | | 1 | " " " |
| 426 | | 6 | META SED |
| 427 | | 1 | AMPH CHL SCH. |
| 428 | | 6 | CHT FTUFF WACKE |
| 429 | | 6 | " " " " |
| 430 | | 1 | MAF META VOLC. |
| 431 | | 1 | CHL AMPH SCH |

Sch.

| MIN | ALT | DATE | REMARKS |
|-------|-----|---------|---|
| | | 83/8/18 | |
| | | " | |
| | | " | |
| TR Py | | " | |
| | | " | LEUCOGABBRO → DIORITE |
| | | " | |
| | | " | CHL AMPH SCHIST |
| 2% Po | - | 83/8/19 | Q ₂ -Fp-AMPH SCH., GABBRO? |
| TR Po | | " | CHL, AMPH SCH |
| | | " | H ₂ O ₁ -Q ₂ -Bi SCH |
| | | " | MAFIC METAVOLC. |
| - | - | " | HARRISON L. GROUP? |
| - | - | " | " " |
| TR Po | - | 83/8/25 | CHL AMPH SCH. |
| - | - | " | MAF METAVOLC. |

TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

For Angle A . $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\operatorname{cosec} = \frac{c}{a}$

Given a, b Required A, B, c

$$\tan A = \frac{a}{b} = \cot B, c = \sqrt{a^2 + b^2} = a \sqrt{1 + \frac{b^2}{a^2}}$$

a, c Required A, B, b

$$\sin A = \frac{a}{c} = \cos B, b = \sqrt{(c+a)(c-a)} = c \sqrt{1 - \frac{a^2}{c^2}}$$

A, a Required B, b, c

$$B = 90^\circ - A, b = a \cot A, c = \frac{a}{\sin A}$$

A, b Required B, a, c

$$B = 90^\circ - A, a = b \tan A, c = \frac{b}{\cos A}$$

A, c Required B, a, b

$$B = 90^\circ - A, a = c \sin A, b = c \cos A$$

Solution of Oblique Triangles

Given A, B, a Required b, c, C

$$b = \frac{a \sin B}{\sin A}, C = 180^\circ - (A + B), c = \frac{a \sin C}{\sin A}$$

A, a, b Required B, c, C

$$\sin B = \frac{b \sin A}{a}, C = 180^\circ - (A + B), c = \frac{a \sin C}{\sin A}$$

a, b, C Required A, B, c

$$A + B = 180^\circ - C, \tan \frac{1}{2}(A - B) = \frac{(a - b) \tan \frac{1}{2}(A + B)}{a + b}$$

$$c = \frac{a \sin C}{\sin A}$$

a, b, c Required A, B, C

$$s = \frac{a + b + c}{2}, \sin \frac{1}{2}A = \sqrt{\frac{(s - b)(s - c)}{bc}}$$

$$\sin \frac{1}{2}B = \sqrt{\frac{(s - a)(s - c)}{ac}}, C = 180^\circ - (A + B)$$

a, b, c Area

$$s = \frac{a + b + c}{2}, \text{area} = \sqrt{s(s - a)(s - b)(s - c)}$$

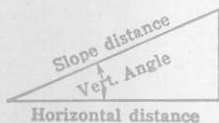
A, b, c Area

$$\text{area} = \frac{bc \sin A}{2}$$

A, B, C, a Area

$$\text{area} = \frac{a^2 \sin B \sin C}{2 \sin A}$$

REDUCTION TO HORIZONTAL



Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = $5^\circ 10'$. From Table, Page IX. $\cos 5^\circ 10' = .9959$. Horizontal distance = $319.4 \times .9959 = 318.09$ ft.
Horizontal distance also = Slope distance minus slope distance times (1 - cosine of vertical angle). With the same figures as in the preceding example, the following result is attained. $\text{Cosine } 5^\circ 10' = .9959$. $1 - .9959 = .0041$. $319.4 \times .0041 = 1.31$. $319.4 - 1.31 = 318.09$ ft.

When the rise is known, the horizontal distance is approximately:—the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft., slope distance = 302.6 ft. Horizontal distance = $302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.