

HMK 8 - KEY

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$$\text{PITCH PER FOOT} = \frac{\text{RISE}}{\text{ONE FOOT}}$$

$$\text{TOTAL FALL} = \text{PITCH PER FOOT} \times \text{TOTAL FEET RUN}$$

$$\% \text{ SLOPE OR } \% \text{ GRADE} = \text{PITCH PER FOOT EXPRESSED AS } \%$$

$$\% \text{ SLOPE} = \frac{\text{TOTAL FALL}}{\text{TOTAL RUN}}$$

1. $\text{PITCH PER FOOT} = \frac{1}{2}''$

CALCULATE $\% \text{ SLOPE}$ $\frac{\frac{1}{2}''}{1 \text{ FOOT}} = .042 = \boxed{4.2\%}$

2. $\% \text{ SLOPE} = 5\%$

CALCULATE PITCH PER FOOT

$$.05 = \frac{\text{PITCH}}{1 \text{ FOOT}}$$

$$1 \text{ FOOT} \times .05 = \frac{\text{PITCH}}{1 \text{ FOOT}} \times 1 \text{ FOOT}$$

$$\boxed{\text{PITCH} = \frac{5}{8}''}{\text{FOOT}}$$

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(2)

$$3. \text{ PITCH} = \frac{3 \frac{1}{8} \text{\"}}{\text{FOOT}}$$

CALCULATE TOTAL FALL FOR 60' SIDEWALK

$$\text{TOTAL FALL} = \frac{3 \frac{1}{8} \text{\"}}{\text{FOOT}} \times 60 \text{ FT} = \boxed{22.5 \text{\"}}$$

CALCULATE % SLOPE

$$\% \text{ SLOPE} = \frac{3 \frac{1}{8} \text{\"}}{\text{FT}} = 0.031 = \boxed{3.1 \%$$

$$4. \text{ TOTAL FALL} = 12 \text{\"}$$
$$\text{SIDEWALK LENGTH} = 40 \text{'}$$

CALCULATE % SLOPE

$$\% \text{ SLOPE} = \frac{\text{TOTAL FALL}}{\text{FEET RUN}}$$

$$\% \text{ SLOPE} = \frac{12 \text{\"}}{40 \text{'}} = \boxed{.025 \text{ OR } 2.5 \%$$

CALCULATE PITCH PER FOOT

$$1 \text{ FOOT} \times \frac{\text{PITCH}}{1 \text{ FOOT}} = .025 \times 1 \text{ FOOT} = \frac{5}{16} \text{\"}$$

$$\text{SO PITCH} = \frac{5/16 \text{\"}}{\text{FOOT}}$$

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5. 30' SIDEWALK, 11" FALL

$$\% \text{ SLOPE} = \frac{11" \text{ FALL}}{30' \text{ RUN}} = .03 = 3\% \text{ SLOPE}$$

6. PITCH/FOOT = $\frac{3}{4}"$ / 1 FOOT

a) 30 FOOT DRIVEWAY $\times \frac{3}{4}"$ / 1 FOOT = 22 $\frac{1}{2}$ " FALL

b) $\% \text{ SLOPE} = \frac{22\frac{1}{2}" \text{ FALL}}{30 \text{ FEET}} = .06 = 6\% \text{ SLOPE}$

c) REQUIRES GUARDRAIL

