## Determining Equations of Trigonometric Functions
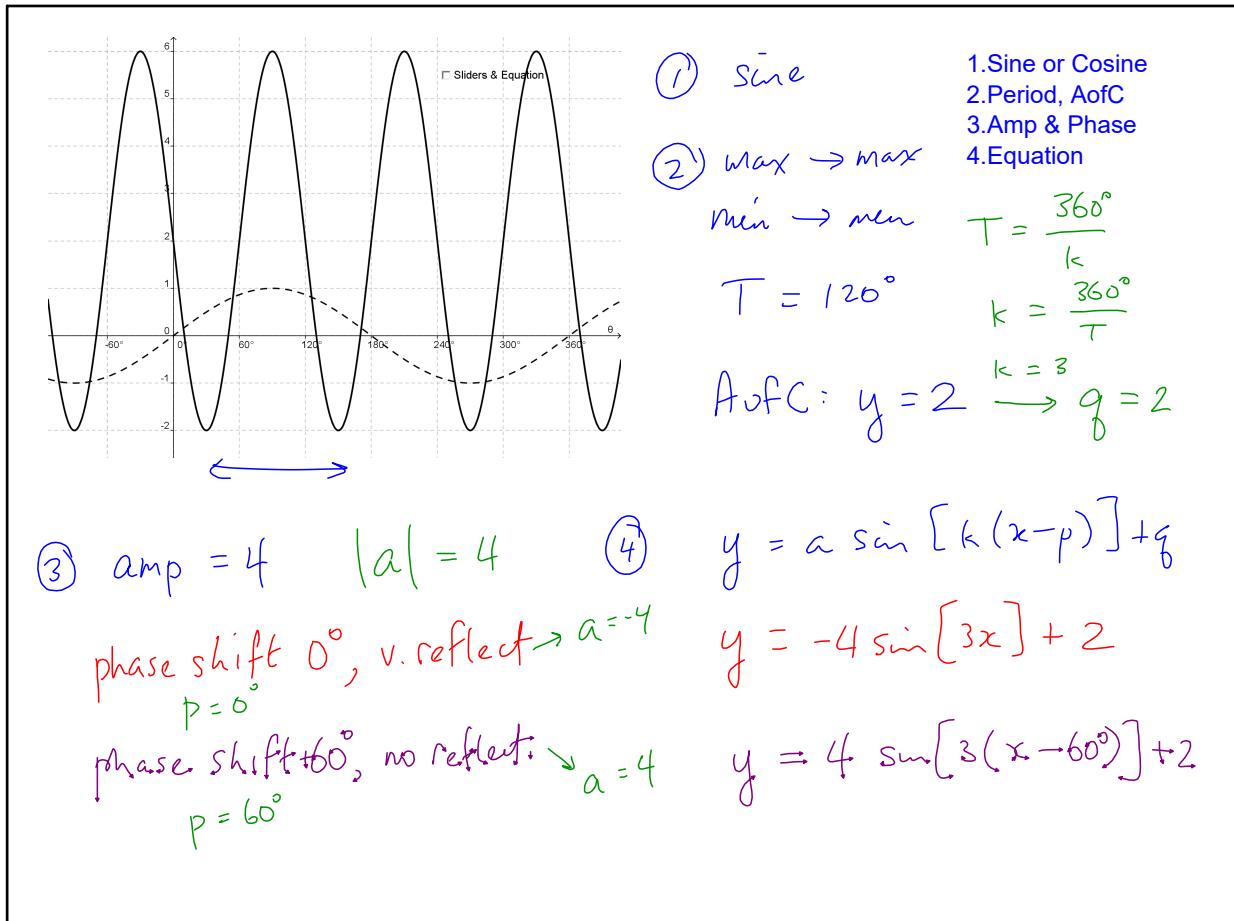
1. Unless specified, choose sine or cosine as
   parent function.

2. Identify key properties of period and axis of the curve and
   use them to determine *k* and *q*.
   *For simplicity, always choose k to be positive.

3. Identify key properties of amplitude and phase shift and
   use them to determine *a* and *p*.
   These properties may vary depending on the parent
   function you have selected.

   * Note: It is always possible, through choices of
     p (phase shift), to have a positive a-value
     and k-value.

4. Write the equation, remembering that multiple answers
   may correctly represent the same graph.   *desmos.*

May 17-9:17 AM

May 17-9:19 AM

① Sine

1. Sine or Cosine
2. Period, AofC
3. Amp & Phase
4. Equation

② max → max

min → min $T = \dfrac{360°}{k}$

$T = 120°$ $k = \dfrac{360°}{T}$

AofC: $y = 2 \xrightarrow{k=3} q = 2$

③ amp = 4 $|a| = 4$ ④ $y = a \sin[k(x-p)] + q$

phase shift 0°, v. reflect → a = -4 $y = -4\sin[3x] + 2$
          p = 0°

phase shift 60°, no reflect. ↘ a = 4 $y = 4\sin[3(x-60°)] + 2$
          p = 60°

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-150°   570°

$P = -330°$ $P = 30°$ ① amp = 0.5   ② $P = 390°$ ③
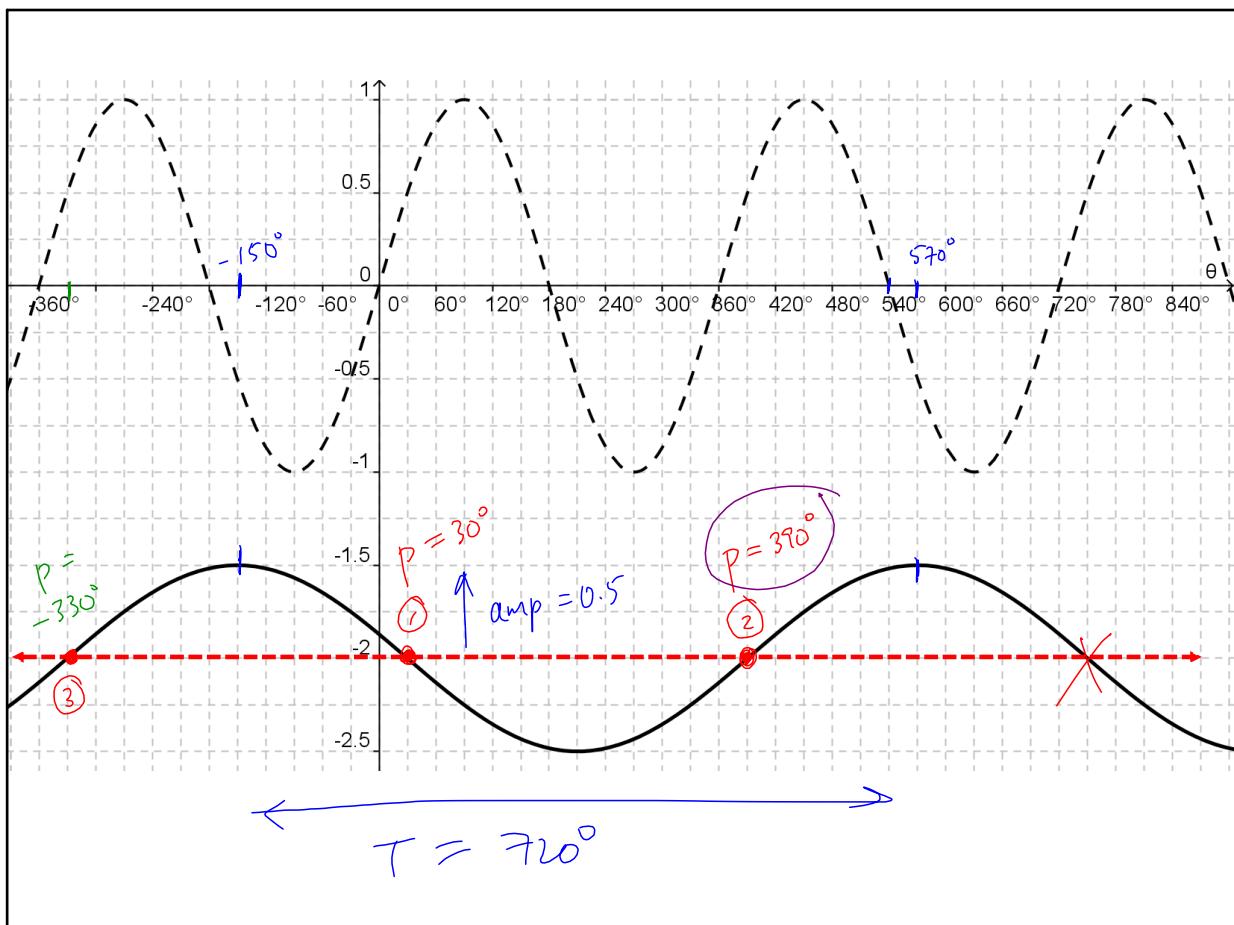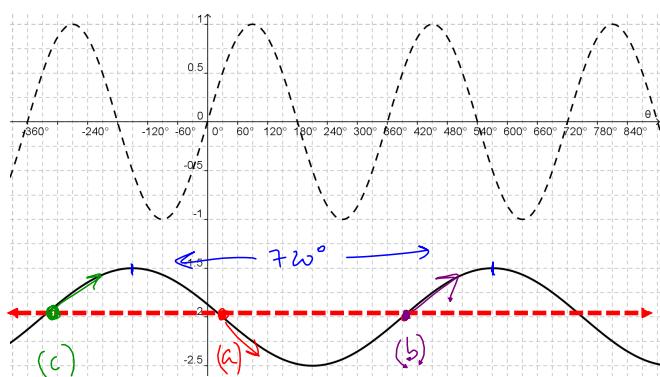
$T = 720°$

May 17-10:44 PM

① Scne

② $T = 720°$

$T = \dfrac{360°}{k}$

$k = \dfrac{360°}{T}$

$= \dfrac{360°}{720°}$

$= \dfrac{1}{2}$

1. Sine or Cosine
2. Period, AofC
3. Amp & Phase
4. Equation

A of C:

$y = -2$

$q = -2$

③ Amp $= 0.5$

(a) $p = 30°$, $a = -0.5$

(b) $p = 390°$, $a = 0.5$

(c) $p = -330°$, $a = 0.5$

$720°$

$y = -0.5 \sin\left[\dfrac{1}{2}(x - 30°)\right] - 2$

$y = 0.5 \sin\left[\dfrac{1}{2}(x - 390°)\right] - 2$

$y = \dfrac{1}{2} \sin\left[\dfrac{1}{2}(x + 330°)\right] - 2$
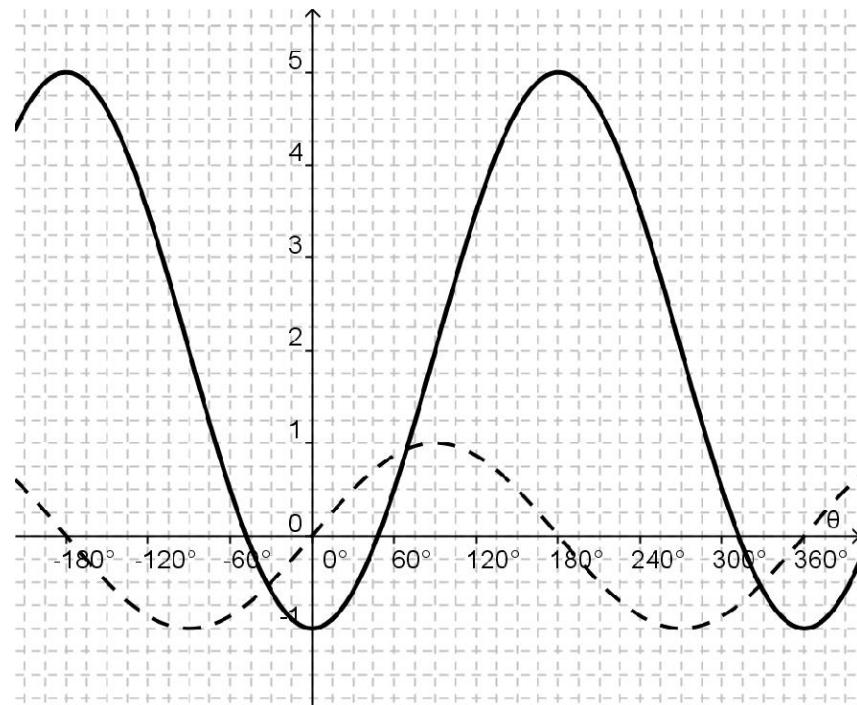
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Assigned Work:

p.375 # 7ab, 8b
worksheet

Dec 10-9:40 AM

3
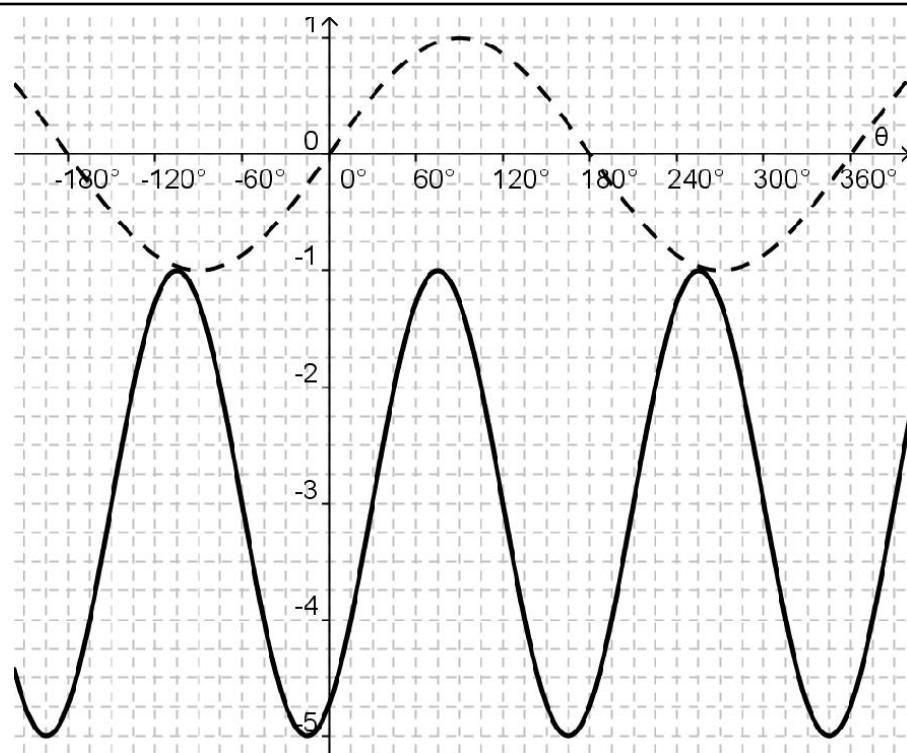
WS.A
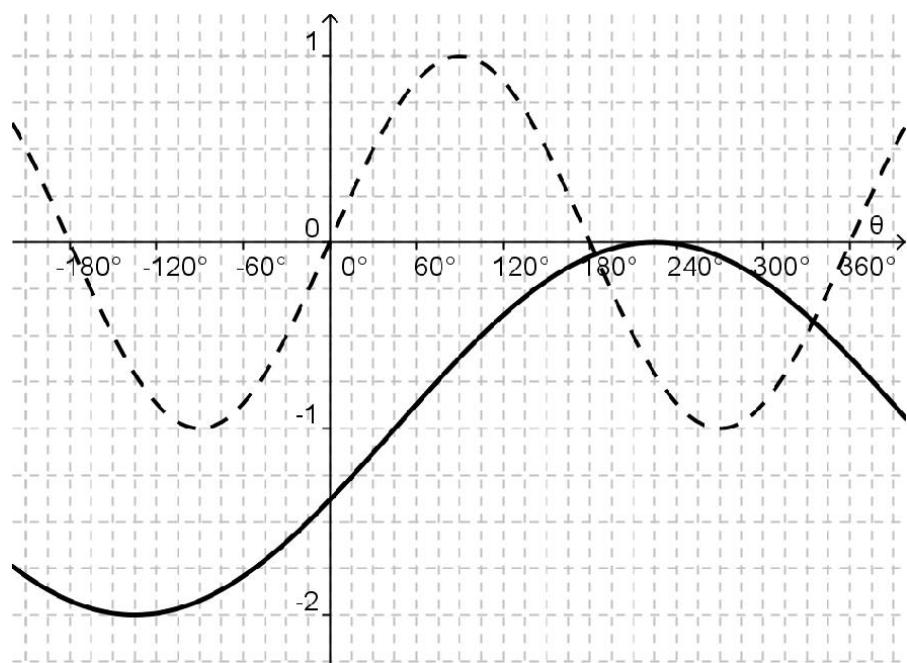
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WS.B
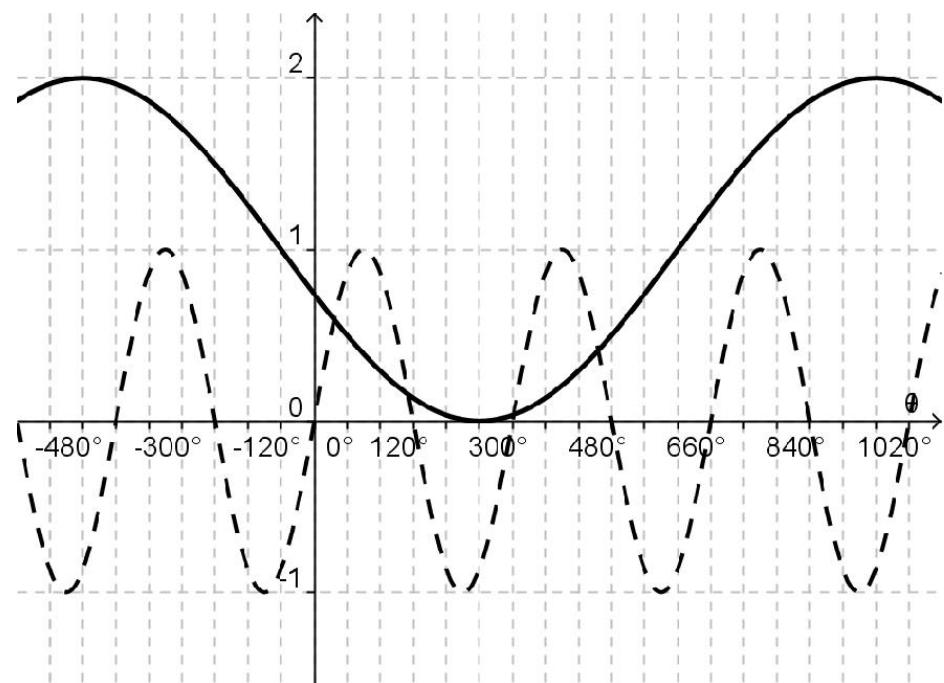

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WS.C
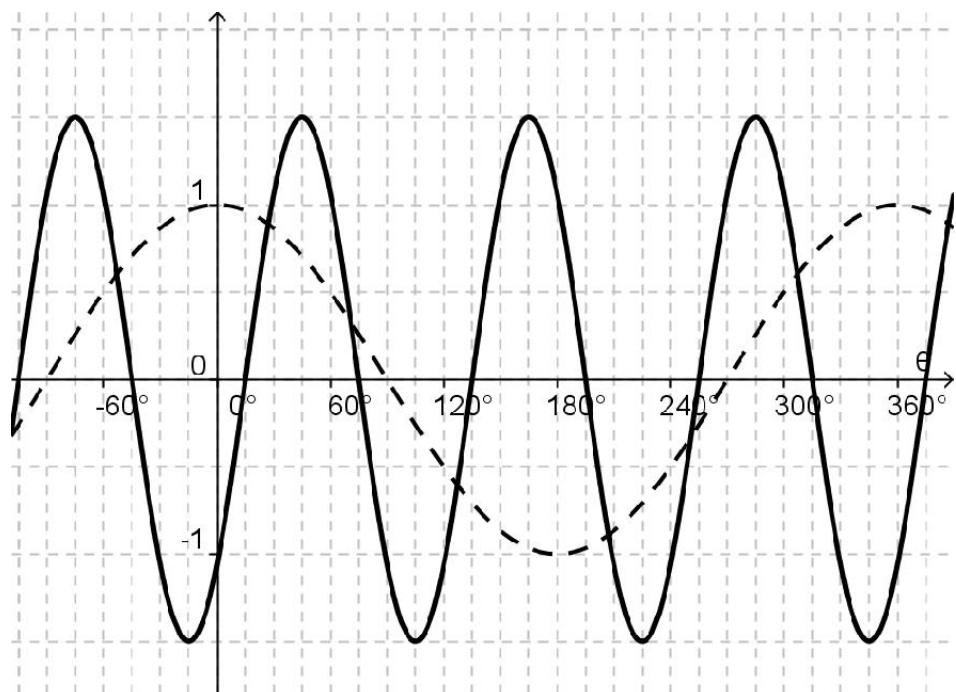
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WS.D
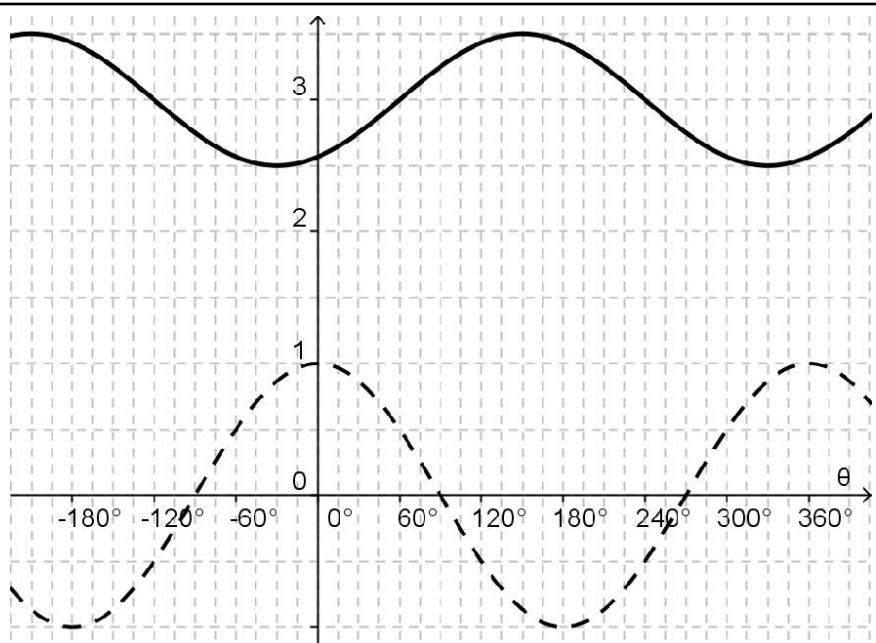
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WS.E

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WS.F

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