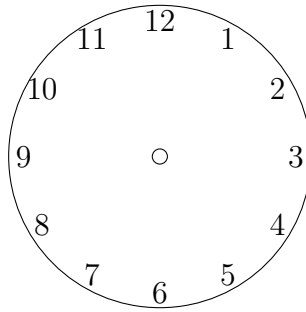
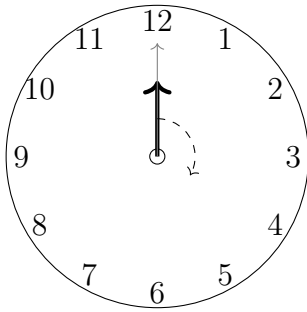


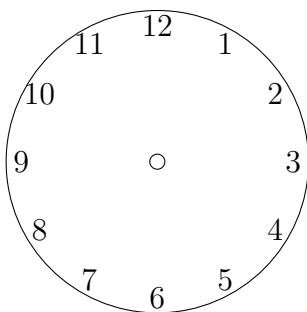
Name:

## 2.2 Extension: Clock problems

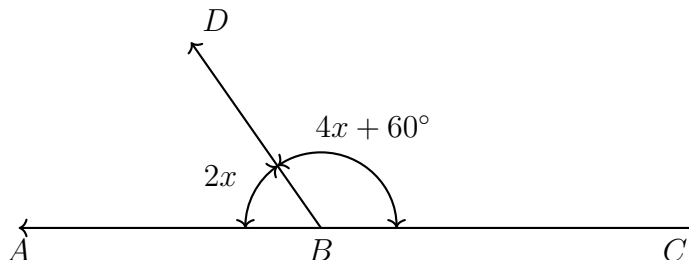
1. A clock face is shown with both hands vertical, pointing at the 12, indicating 12:00.
  - (a) Draw the positions of the minute and hour hands at 3:00 on the second clock.
  - (b) What angle is made by the two hands at 3:00?



2. How many degrees does the minute hand move in an hour?
3. How many degrees does the hour hand move in an hour?
4. How many minutes does it take the minute hand to move 90 degrees?
5. How many minutes does it take the hour hand to move 90 degrees?
6. Write an expression to model the angle measure the minute hand makes versus vertical after  $t$  minutes.
7. Mark the positions of the minute and hour hands at 3:30. What angle is made now?



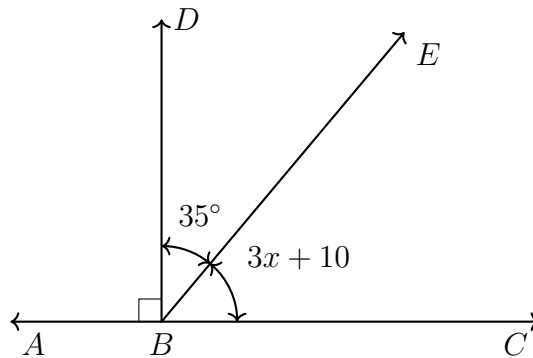
8. Two supplementary angles have measures  $m\angle ABD = 2x$  and  $m\angle DBC = 4x + 60^\circ$ .  
Write an equation, then find  $x$ .



9. Given the perpendicular situation shown,  $\overrightarrow{BD} \perp \overrightarrow{ABC}$  and angle measures given.  
Find  $x$ .

$$m\angle DBE = 35^\circ$$

$$m\angle EBC = 3x + 10^\circ$$



10. The perimeter of the isosceles  $\triangle FGH$  is 115 and  $\overline{FH} \cong \overline{GH}$ . Given  $FG = 5x + 16$  and  $FH = 34\frac{1}{2}$ .

Write an equation to find  $x$ , then solve and check.

