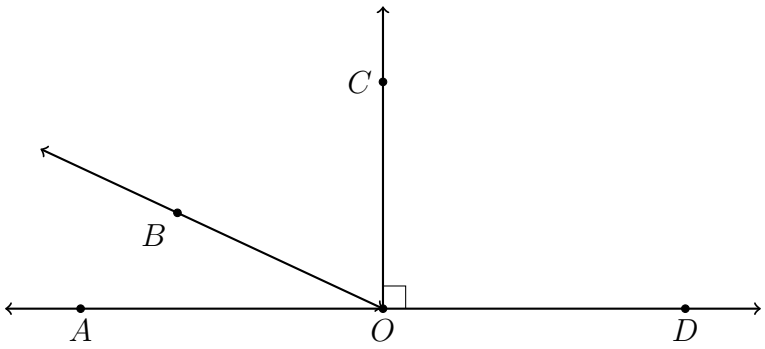
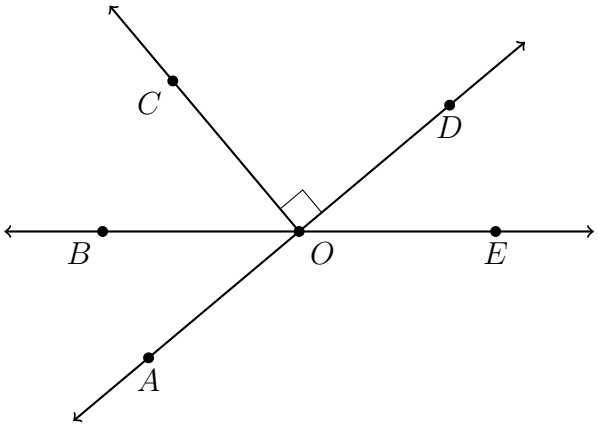
6.7 Homework: Mixed review

1. In the diagram below $\angle AOB = x - 35$ and $\angle COD = \frac{3}{4}(x + 55)$. Find $\angle BOC$.



2. In the diagram below $\angle AOB = 5x - 15$ and $\angle DOE = 4x - 4$. Find $m\angle AOB$.



3. In the following two problems, solve for the value of x.

   (a) $\frac{4}{3}(6x-3) = x + 10$

   (b) $\frac{2}{5}(x-1) + \frac{5}{2}(1-x) = 0$

4. Given the linear function $f(x) = -2x + 14$.

   (a) Find $f(4)$

   (b) $f(x) = 21$. Find x.

5. Given two lines $f(x) = \frac{3}{2}x + 8$ and $g(x) = -\frac{1}{4}x + 5\frac{1}{2}$. Is the point $P(-2, 5)$ on one line, both, or neither?

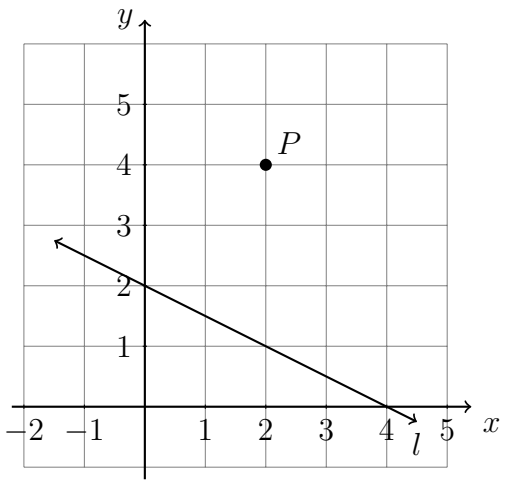
6. The line l is graphed at right.

   (a) Write down the line's slope.
   $m =$
   $b =$

   (b) Write down it's y-intercept.

   (c) Write down the equation of the line.

(d) Draw a line parallel to l through point P. (use a straight edge for full credit)



7. Find the slope of the line through the points $(2, -2)$ and $(-1, 4)$.

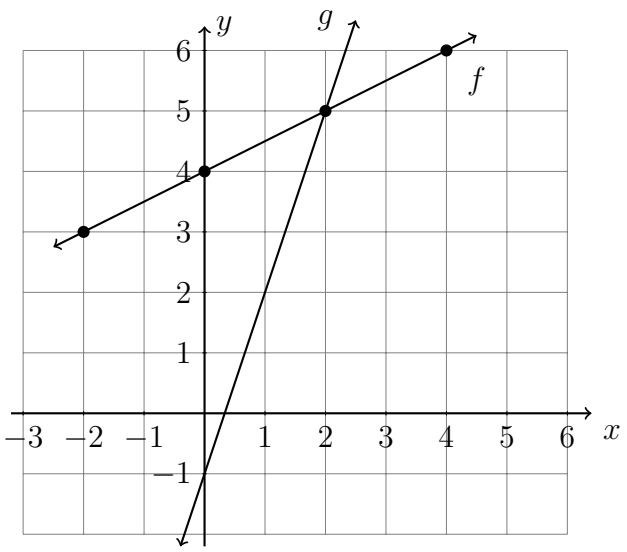
8. Write the linear equation $y - 7 = \frac{3}{2}(x + 10)$ in the form $y = mx + c$.

9. Is the point $(-5, 1)$ on the line $y = -\frac{3}{5}x - 3$? Support your answer algebraically.

10. Two lines are graphed below.
    (a) Complete the T-tables for each.
    (b) Write down the equations for each.

$f(x)$

x	y
-2	
0	
	5
	6



$g(x)$

x	y

11. Given a triangle $\triangle ABC$ having angles with measures $m\angle A = 60°$ and $m\angle C = 90°$. Find the measure of the third angle, $m\angle B$.

12. Do Now: Write down the slope perpendicular to the given slope. (negative reciprocal)

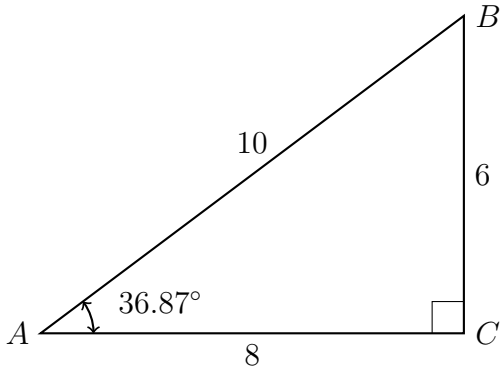
    (a) $m = 4$ $\quad m_\perp =$ $\qquad$ (b) $m = -\frac{5}{2}$ $\quad m_\perp =$

13. $\triangle ABC$ is shown with $m\angle C = 90°$ and the lengths of the triangle's sides are $BC = 6$, $AC = 8$, and $AB = 10$. (not drawn to scale)

    (a) How long is the side *opposite* $\angle A$?

    (b) How long is the side *adjacent* to $\angle A$?

    (c) How long is the *hypotenuse*?

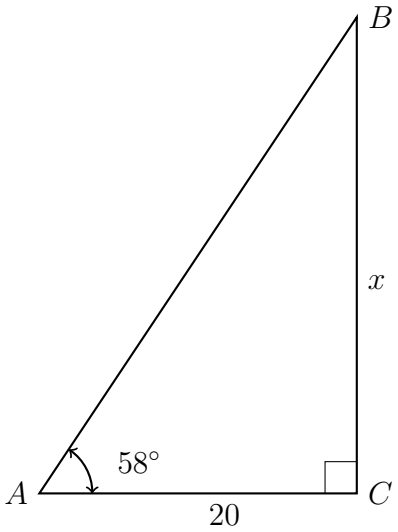


Use Graspable Math to verify the tangent calculation.

$\tan 36.87° = \dfrac{6}{8}$

14. $\triangle ABC$ is shown with $m\angle C = 90°$, $m\angle A = 58°$, and the base with length $AC = 20$.

    Find the height $BC = x$.



    Use Graspable Math and the tangent function: $\tan 58° = \dfrac{x}{20}$

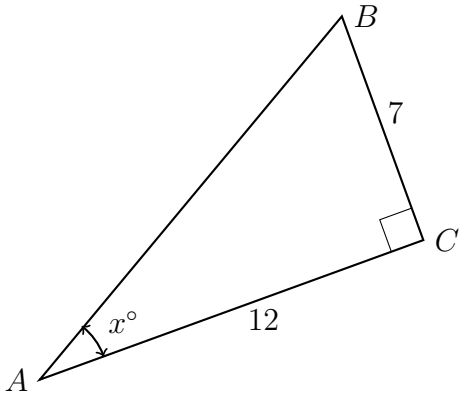
15. $\triangle ABC$ is shown with $m\angle C = 90°$ and $m\angle A = x°$. The lengths of the legs are $AC = 10$ and $BC = 7$.

    (a) Express $\tan x$ as a fraction.

    $\tan x° = \dfrac{?}{?}$

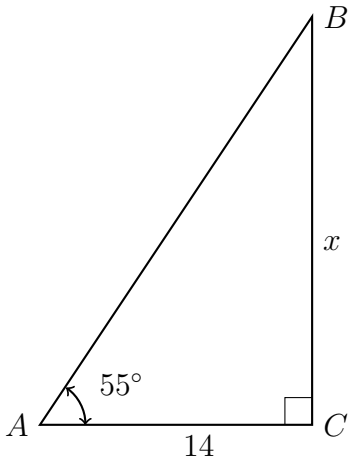
    (b) Which side is *opposite* $\angle B$?

    (c) Which leg is *adjacent* to $\angle B$?



16. $\triangle ABC$ is shown with $m\angle C = 90°$, $m\angle A = 55°$, and the base with length $AC = 14$.

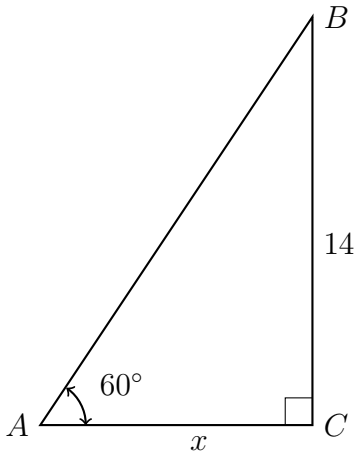
    Find the height $BC = x$.



Use Graspable Math and paste the solution starting with the substitution step.

17. $\triangle ABC$ is shown with $m\angle C = 90°$, $m\angle A = 60°$, and height $AC = 14$.

    Find the base $AC = x$.



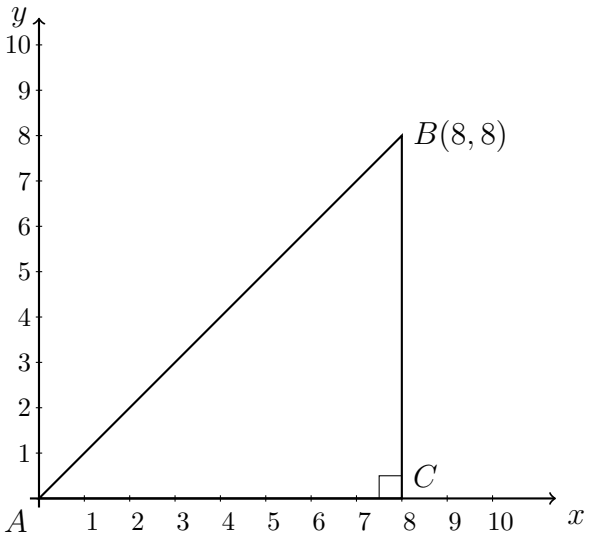
Use Graspable Math and paste the solution starting with the substitution step.

18. Right $\triangle ABC$ is drawn in *standard position* with vertex A on the origin and right $\angle C$ on the x-axis, as shown.

    (a) Find the slope of the line segment $\overline{AB}$.

    (c) Find the length of the hypotenuse AB using the Pythagorean Theorem $a^2 + b^2 = c^2$. (leave as a radical)

    (b) Find the measure of $\angle A$.
    Hint: isosceles triangle


y
10
9
8
7
6
5
4
3
2
1
B(8, 8)
C
A
1 2 3 4 5 6 7 8 9 10
x