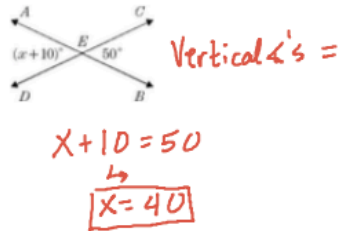


**Vertical, Supplementary, Complementary Angles (Algebraic)**

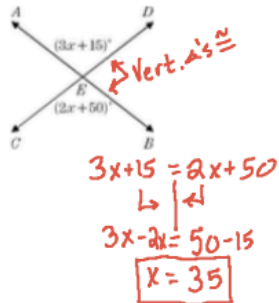
**Math 2**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

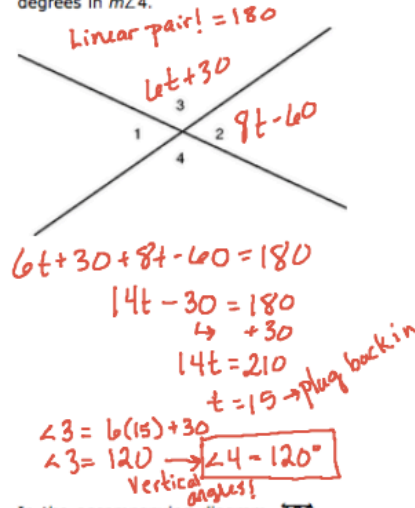
1. In the accompanying diagram, lines  $\overline{AB}$  and  $\overline{CD}$  intersect at point  $E$ . If  $m\angle AED = (x + 10)$  and  $m\angle CEB = 50$ , find  $x$ .



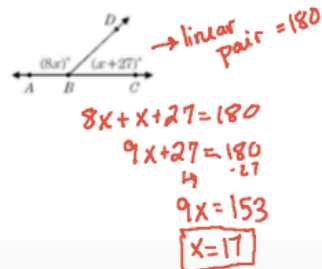
2. In the accompanying diagram,  $\overline{AB}$  and  $\overline{CD}$  intersect at  $E$ , and  $m\angle AED = 3x + 15$ . If  $m\angle CEB = 2x + 50$ , find the value of  $x$ .



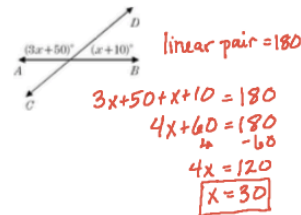
3. In the accompanying figure, two lines intersect,  $m\angle 3 = 6t + 30$ , and  $m\angle 2 = 8t - 60$ . Find the number of degrees in  $m\angle 4$ .



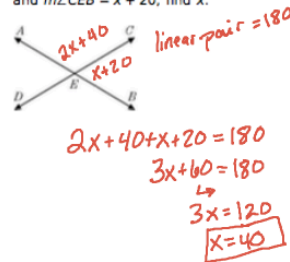
4. In the accompanying diagram,  $\overline{ABC}$  is a straight line.  $m\angle ABD = 8x$ , and  $m\angle DBC = x + 27$ . Find  $x$ .



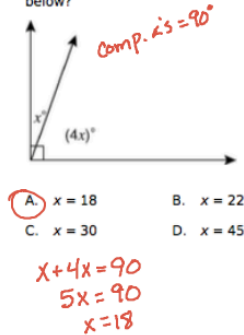
5. In the accompanying diagram, the adjacent angles formed by intersecting lines  $\overline{AB}$  and  $\overline{CD}$  have measures of  $3x + 50$  and  $x + 10$ . Find  $x$ .



6. In the accompanying diagram,  $\overline{AB}$  and  $\overline{CD}$  intersect at  $E$ . If  $m\angle AEC = 2x + 40$  and  $m\angle CEB = x + 20$ , find  $x$ .



7. What is the value of  $x$  in the figure below?



8. The measures of two complementary angles are represented by  $x + 5$  and  $4x - 15$ . Find the value of  $x$ .

$\rightarrow = 90^\circ$

$$x + 5 + 4x - 15 = 90$$

$$5x - 10 = 90$$

$$\rightarrow +10$$

$$5x = 100$$

$$\boxed{x = 20}$$

9. Two angles are complementary. If the measure of one angle is  $20^\circ$  more than the measure of the second angle, what is the number of degrees in the measure of the smaller angle?

$\rightarrow = 90^\circ$

$$x + 20 + x = 90$$

$$2x + 20 = 90$$

$$2x = 70$$

$$\boxed{x = 35 \text{ (smaller)}}$$