

**1.11 Quiz: Powers, radicals, constructions**

**Mental math - no calculators**

1. Memorize the squares to 100.

*3.OA.7 Fluently multiply and divide within 100*

(a)  $3^2 =$

(c)  $6^2 =$

(b)  $9^2 =$

(d)  $3^3 =$

2. Memorize the square roots of whole numbers through 100 and cubes through five.

(a)  $\sqrt{64} =$

(d)  $\sqrt{4} =$

(b)  $\sqrt{16} =$

(e)  $\sqrt[3]{27} =$

(c)  $\sqrt{49} =$

(f)  $\sqrt[3]{8} =$

3. Round to the *nearest thousandth*.

(a)  $A = 3.1415926$

(b)  $V = 1.4142135$

4. Simplify each expression by “collecting like terms”

(a)  $x - 5x^2 - 6x + 9x^2$

(b)  $5\sqrt{3} + 3y - \sqrt{3} - 7y$

5. Use the function  $f(x) = 3x - 5$  to answer the questions.

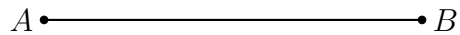
(a) What is  $f(1)$ ?

(c) Solve for  $x$  if  $f(x) = 16$ .

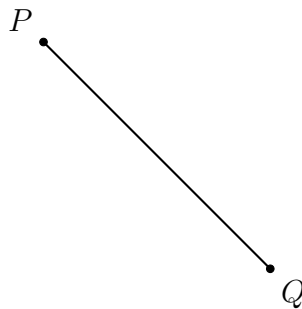
(b) Find  $f(\frac{2}{3})$

**Constructions: Use only a compass and straightedge**

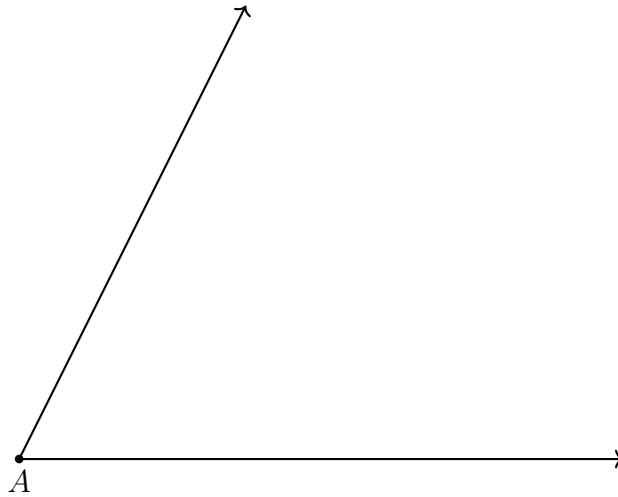
6. Construct an equilateral triangle with one side  $\overline{AB}$ . [Leave all construction marks.]



7. Construct a perpendicular bisector the given line segment  $\overline{PQ}$ . Label the midpoint of  $\overline{PQ}$  as  $M$ . Mark the right angle with a small square and hash marks on the two congruent segments.



8. Construct an angle bisector the given angle  $A$ . [Leave all construction marks.]



**Spicy: Construct a hexagon inscribed in a circle**

9. Construct an equilateral triangle on  $\overline{AB}$  by drawing a circle centered on  $A$ . Continue with a second equilateral triangle on  $\overline{AC}$  by drawing a circle centered on  $C$ . Work around the circle  $B$  four more times to construct the hexagon.

