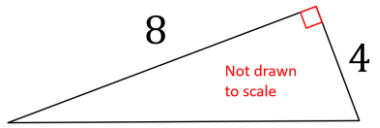
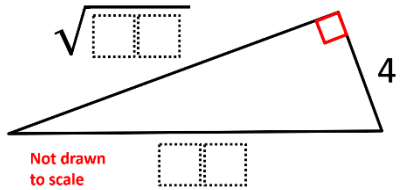
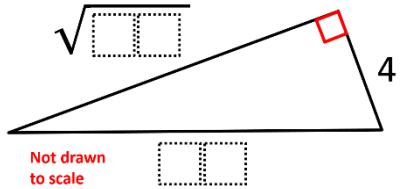
Depth of Knowledge Matrix – Eighth Grade Math

Topic	Approximating Irrationals	Properties of Exponents	Scientific Notation	Pythagorean Theorem
CCSS Stand.	• 8.NS.2	• 8.EE.1	• 8.EE.4	• 8.G.8
DOK 1 Example	The irrational number $\sqrt{70}$ is between which two integers?	Simplify. $4^3 \cdot -6^2$	Simplify. $2 \cdot 10^{-4} \cdot 5 \cdot 10^{7}$	Find the length of the missing side. 
DOK 2 Example	Using the digits 0 to 9 at most one time each, fill in the boxes twice to make two different true statements. You may reuse all the digits each time. $\sqrt{\square\square}$ is greater than $\square$ and less than $\square$	Using the integers -9 to 9 at most one time each, fill in the boxes twice to make a positive product and a negative product. You may reuse all the integers each time. $\square^{\square} \cdot \square^{\square}$	Using the digits 1 to 9 at most one time each, fill in the boxes twice to make a product that equals 800,000,000. You may reuse all the digits for each product. $\square \cdot 10^{\square} \cdot \square \cdot 10^{\square}$	Using the digits 0 to 9 at most one time each, fill in the boxes to find two pairs of possible lengths for the missing sides. 
DOK 3 Example	Using the digits 0 to 9 at most one time each, fill in the boxes twice to make the greatest possible irrational number. $\sqrt{\square\square}$ is greater than $\square$ and less than $\square$	Using the integers -9 to 9 at most one time each, fill in the boxes to make a product that is as close to zero as possible without being exactly zero. $\square^{\square} \cdot \square^{\square}$	Using the digits 1 to 9 at most one time each, fill in the boxes to make the greatest product. $\square \cdot 10^{\square} \cdot \square \cdot 10^{\square}$	Using the digits 0 to 9 at most one time each, fill in the boxes to find the lengths of the missing sides such that the missing leg's length is as long as possible. 

Version 1.0

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Topic	Graphing Linear Equations	Linear Equations In 1 Variable	Scatter Plots	Systems of Equations
CCSS Stand.	• 8.EE.5	• 8.EE.7	• 8.SP.1	• 8.EE.8b
DOK 1 Example	Graph the line. $y = \frac{2}{3}x + -5$	Solve for x. $4x + 3 = 2x + 7$	Determine the association between the points. $(8,9), (0,-4), (3,2),$ $(-3,-6), (5,6), (-2,-5),$	Solve the system: $y = \frac{-1}{9}x + 6$ $y = \frac{5}{3}x + 4$
DOK 2 Example	Using the integers -9 to 9 at most one time each, fill in the boxes to make two linear equations which go through (1, 2): one with a negative slope and one with a positive slope. You may reuse all the integers for each equation. $y = \frac{\square}{\square}x + \square$	Using the digits 1 to 9 at most one time each, place a digit in each box to create two equations: one where x has a positive value and one where x has a negative value. $\square x + \square = \square x + \square$	Using the integers -9 to 9 at most one time each, fill in the boxes to create two sets of six points: one that has a positive association and one that has a negative association. You may reuse all the integers for each equation. $(\square,\square),(\square,\square),$ $(\square,\square),(\square,\square),$ $(\square,\square),(\square,\square)$	Using the integers -9 to 9 at most one time each, fill in the boxes to create a system of equations with a solution in Quadrant 2. $y = \frac{\square}{\square}x + \square$ $y = \frac{\square}{\square}x + \square$
DOK 3 Example	Using the integers -9 to 9 at most one time each, fill in the boxes to make a linear equation which goes through (1, 2) and has a slope that's as close to 0 as possible without being horizontal. $y = \frac{\square}{\square}x + \square$	Using the digits 1 to 9 at most one time each, place a digit in each box to create an equation with a solution that's as close to zero as possible. $\square x + \square = \square x + \square$	Using the integers -9 to 9 at most one time each, fill in the boxes to create the strongest possible linear association. $(\square,\square),(\square,\square),$ $(\square,\square),(\square,\square),$ $(\square,\square),(\square,\square)$	Using the integers -9 to 9 at most one time each, fill in the boxes to create a system of equations with a solution in that's as close to the origin as possible. $y = \frac{\square}{\square}x + \square$ $y = \frac{\square}{\square}x + \square$