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| **Type POS Math descriptor here**  | **=** | **Apply properties of rational and irrational numbers to solve real world or mathematical problems** |
| **Program Task:** Enter POS task here. | **PA Core Standard:** CC.2.1.HS.F.2**Description:** Apply properties of rational and irrational numbers to solve real world or mathematical problems. |
| **Program Associated Vocabulary:**ENTER PROGRAM VOCABULARY HERE  | **Math Associated Vocabulary:** REAL NUMBER, RATIONAL NUMBER, IRRATIONAL NUMBER, DECIMAL, FRACTION, SQUARE ROOT |
| **Program Formulas and Procedures:**Display program example of math concept by entering text, graphic, and formulas in this column. | **Formulas and Procedures:**It is relatively simple to compare numbers when they are in the same form. For example 0.15 is smaller than 0.25. The numbers are both in decimal form so they are easily comparable. It becomes more difficult to compare numbers that are either in different forms, such as a fraction to a decimal, or in fractional form with different denominators, such as 3/5 and 5/9.  The easiest way to compare numbers that are in different forms is to convert each number to its decimal form.**Example:** Which of the following numbers is largest?6/25 3/14 0.21. Convert each number to its decimal equivalent:

0.24 0.2142857... 0.21. Compare the digits in the tenth place, if they are the same move to the hundredths place, and so on until the order can be determined.

For instance, we cannot round to the nearest tenth, because it would give us the same value of .2 for all of the numbers. Rounding to the nearest hundredth would make the numbers: 0.24 0.21 0.21. Add zeroes to make all numbers have the same number of digits after the decimal.

0.24 0.21 0.20For comparative purposes, it is important to add a zero so that the numbers 20/100, 21/100, and 24/100 can be compared. Since 24/100 is larger than 21/100 and 20/100, 0.24 (6/25) is the largest number. |

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| **Instructor's Script - Comparing and Contrasting**The Math or program area instructor should fill in this area by comparing academic math problems to lab area problems. The instructor should describe ways that trade math is similar to or different from the academic math that occurs in the PA Core Math standard or on Keystone related exams. |

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| **Common Mistakes Made By Students****Comparing decimals**: Decimals are easier to compare if the number of digits after the decimal point is the same. For instance, students often think that 0.6 is less than 0.34 because 6 is less than 34. A zero must be added to the 6 to make the number .60 so that the student can compare 0.60 and 0.34**Comparing fractions:** Fractions can be compared when they have a **common denominator**. For instance, 5/16 inches and 3/8 inches are two measurements on a ruler. In order to compare the two fractions, they must have a common denominator, 16. 3/8 is larger than 5/16.   |

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| **CTE Instructor's Extended Discussion**The CTE instructor may add comments here describing the importance of this math skill in relationship to the program task, or note common problems which students have when making the computations. |

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| **Problems Career and Technical Math Concepts Solutions** |
| 1. Program relevant problem
 | Allow work space here |
| 1. Program relevant problem
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| 1. Program relevant problem
 | Allow work space here |
| **Problems Related, Generic Math Concepts Solutions** |
| 1. Which of the following measurements is longest?

2 ½ inches, 2 3/8 inches, 2 7/16 inches |  |
| 1. Order the following measurements from least to greatest:

feet, 2 ½ feet, 2.6 feet |  |
| 1. Which of the following measurements is largest?

 cm., cm., 6.25 cm. |  |
| **Problems PA Core Math Look Solutions** |
| 1. Order the following numbers from least to greatest:

 2.4, , 2 7/8 |  |
| 1. Order the following numbers from largest to smallest:

0.02, 0.223, 0.24, 0.243 |  |
| 1. Order the following numbers from least to greatest:

, , 3 1/5, 3.25 |  |

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| **Problems Career and Technical Math Concepts Solutions** |
| 1. Program relevant problem
 | Provide answer here |
| 1. Program relevant problem
 | Provide answer here |
| 1. Program relevant problem
 | Provide answer here |
| **Problems Related, Generic Math Concepts Solutions** |
| 1. Which of the following measurements is longest?

2 ½ inches, 2 3/8 inches, 2 7/16 inches | List numbers: 2 ½ inches, 2 3/8 inches, 2 7/16 inchesRewrite as decimals: 2.5 inches 2.375 inches, 2.4375 inchesRound to the hundredth: 2.50 2.38 2.442 ½ inches is longest |
| 1. Order the following measurements from least to greatest:

feet, 2 ½ feet, 2.6 feet | List numbers: ft. 2 ½ ft. 2.6 ft.Rewrite as a decimal: 2.646 2.5 2.6Round to the nearest hundredth: 2.65 2.50 2.60Least to greatest: 2 ½ ft., 2.6 ft.,ft. |
| 1. Which of the following measurements is largest?

cm., cm., 6.25 cm. | cm. cm. 6.25 cm.6.28 cm. 6.40 cm. 6.25 cm.cm is largest |
| **Problems PA Core Math Look Solutions** |
| 1. Order the following numbers from least to greatest:

2.4, , 2 7/8 | List numbers: 2.4  2 7/8Rewrite as a decimal: 2.4 2.2360… 2.875Round to nearest tenth: 2.4 2.2 2.9Least to greatest: **,**  2.4, 2 7/8 |
| 1. Order the following numbers from largest to smallest:

0.02, 0.223, 0.24, 0.243 | Convert to thousandths: 0.020, 0.223, 0.240, 0.243 Order the converted numbers from largest to smallest: 0.243, 0.240,0.223, 0.020Place final answer with numbers in original form: 0.243, 0.24, 0.223, 0.02 |
| 1. Order the following numbers from least to greatest:

, , 3 1/5 , 3.25 | List numbers:    3.25Rewrite as a decimal 3.16228… 3.14286… 3.2 3.25Round to the hundredth: 3.16 3.14 3.20 3.25Least to greatest: , , 3 1/5 , 3.25 |