

Algebra I: Unit 2 Test

Name: _____

Date: _____

Period: _____

Topic: Writing and Solving Equations & Systems

Solve for x: $6x + 3 = 8x - 21$

Solve for c: $2(c + 3) - 3c - 12 = 12$

Derek received an Apple Watch for graduation. He has saved \$43 and plans to save an additional \$20 per week. He wants to buy AirPods for \$169.10. How long will it take for Derek to be able to afford the AirPods?

Create and solve a one variable linear equation from a real world scenario. CED.A.1

4: Equation is created and solved correctly with the variable and answer appropriately labeled and in context.

3: Equation is created and solved correctly with the variable and answer appropriately labeled.

2: Equation is created and solved. Allows for minor errors.

1: A reasonable answer is given.

Your class is sponsoring an "Up All Night" dance, and you are in charge of decorating, setting up food, and hiring a DJ. You've contacted two DJ companies. Below is a summary of their fees. Both DJs are equally popular with students, so it all comes down to cost. At how many hours is the cost of the two DJs the same?

- DJ Jazzy Geoff - Charges a set-up fee of \$325, plus \$50 per hour
- DJ Livemau5 - Charges a set-up fee of \$175, plus \$75 per hour

Solve systems of linear equations. A.REI.C.6, MP3

4: A system of equations is used to solve the problem and a detailed justification is given to support the claim.

3: A system of equation is used to directly answer the question.

2: A system of equations is used. Allows for minor errors.

1: A reasonable answer is given.

Topic: Literal Equations

Solve for a:

$$d = \frac{a}{bc}$$

Solve for a:

$$ab - cd = e$$

The surface area of a cylinder is given by the formula $S = 2\pi r^2 + 2\pi rh$, where S =surface area, r =radius, and h =height.

Tom works for a paint manufacturer, making labels for the cans of paint. He wants to see how cans of different radii and surface areas affect the height of the label. Solve the literal equation for h and then use that equation to find the height of a can of paint that has a surface area of 350 in^2 and a radius of 4 in (use 3.14 for π).



Rearrange formulas to solve for a variable. A.CED.A.4

4: The variable of interest is solved for correctly, and the height is solved for and labeled correctly.

3: The variable of interest is solved for correctly.

2: The variable of interest is isolated. Allows for minor errors.

1: The process of solving for the variable of interest has some accurate steps.

Topic: Solving Absolute Value Equations and Inequalities

Solve for x:

Solve for x:

Word problem with absolute value equation or inequality?

Standard

4:

3:

2:

1:

Topic: Function Notation and Interpreting Graphs

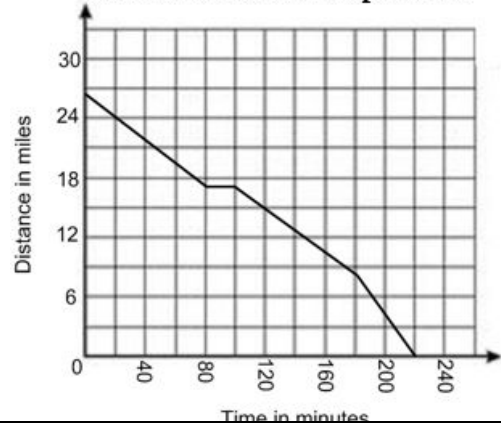
The temperature in degrees Fahrenheit is 32 more than 1.8 times the temperature in degrees Celsius. Write a function rule $F(c)$ to model the conversion from Celsius to Fahrenheit. Find $F(28)$.

Use the function you wrote in the box to the left to find the temperature in degrees Celsius (c) when it is $84^{\circ}F$ outside.

Chris recently ran a marathon (26.2 miles). He ran through Connecticut, starting in Middletown and ending at BHS in Branford. The actual route Chris ran is modeled in the graph below, with "Distance" representing distance from BHS. The graph shows Chris starting off running at a steady pace, stopping at a convenience store to get some water, continuing his steady pace, and then sprinting at the end when he realized how close he was to being finished. Let t represent time in minutes.

State the domain and range for this function:

Chris's Marathon Experience



What is the approximate value of $f(140)$? Explain what it represents in the context of the problem.

Find t when $f(t) = 24$ miles. Explain what it represents in the context of the problem.

Does this situation represent a function? Explain why or why not.

Understand the definition of a function. F.IF.A.1

4: Correctly determines if the relationship models a function and provides proper justification in context.

3: Correctly determines if the relationship models a function and provides proper justification.

2: Correctly determines if the relationship models the function.

1: Justification suggests some knowledge of definition of a function.

Use a graph, table, or verbal description to interpret key characteristics of a function. F.IF.4, MP4

4: Key characteristics (domain, range, and ordered pairs) are accurately identified and labeled. Verbal description ties key characteristics to context.

3: Key characteristics are accurately identified and labeled.

2: Most of the key characteristics are accurately identified and labeled.

1: Some of the key characteristics are accurately identified and labeled.

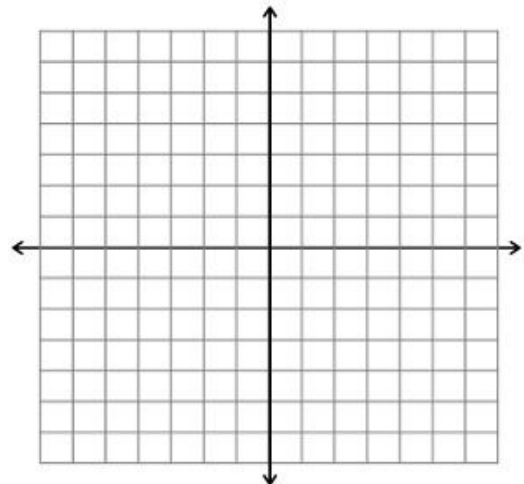
Topic: Solving and Graphing Inequalities

Solve for x . Graph your solution on a number line:

$$36 > -4x + 12$$

Graph the following linear inequality:

$$-2x + 3 \leq y + 4$$



Oscar and his band want to record and sell CDs. There will be a set-up fee of \$400, and each CD will cost \$3.75 to burn. The recording studio requires bands to make a minimum purchase of \$1000. What is the minimum number of CD's the band can burn to meet the minimum purchase of \$1000?

Create inequalities in one variable and use them to solve problems. A.CED.A.1 MP6

4: Inequality successfully models situation in a form specific to the requirements of the problem.

3: Inequality models situation.

2: Inequality fits an appropriate form, but contains errors.

1: Inequality is written, but does not successfully model situation.

Solve linear inequality or equation in one variable. A.REI.B.3, MP1

4: The inequality is solved accurately and is answered using labels and a complete sentences.

3: The inequality is solved accurately and a label is included in the answer.

2: An inequality was used, but the process of solving and/or solution contain errors.

1: A reasonable solution is given, but the linear equation was not used.

