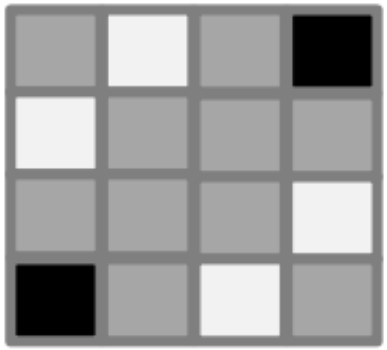
EngageNY Tasks — Standards Card Sort

Directions: Print and cut pages 1–8. Mix the cards before giving them to participants (1 card set per 4 participants).

Using the floor tiles design shown below, create 4 different ratios related to the image. Describe the ratio relationships and write the ratio in the form A:B or the form A to B. 	6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1 because for every 2 wings, there was 1 beak." Or "For every vote candidate A received, candidate C received nearly 3 votes."*

Define the constant of proportionality to answer the follow-up question. Bananas are $\$0.59$/pound. a. What is the constant of proportionality, or k? b. How much will 25 pounds of bananas cost?	7.RP.A.2c Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.*

a. Natalie can paint 40 square feet in 9 minutes. Assuming she paints at a constant rate, write the linear equation that represents the situation.

b. The table of values below represents the area painted by Steven for selected time intervals. Assume Steven is painting at a constant rate.

Minutes (x)	Area painted (y)
3	10
5	50/3
6	20
8	80/3

Who paints faster? Explain.

8.EE.B.5

Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways*. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*

X	Y
0	
1	10
2	0
3	-6
4	-8
5	
6	

a. Determine the function type that could be used to model the data set above and explain why.

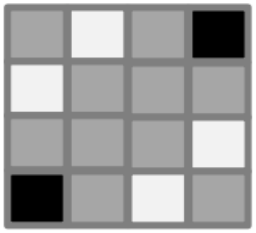
b. Complete the data set using the special pattern of the function you described above.

c. If it exists, find the minimum or maximum value for the function model. If there is no minimum or maximum, explain why.

A1: F-LE.A.1b

Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.

Possible Responses:

ENY Task	Math Standards	Element of Rigor
G6 M1 TA L2 – Problem Set #1 Using the floor tiles design shown below, create 4 different ratios related to the image. Describe the ratio relationships and write the ratio in the form A:B or the form A to B. 	6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:, because for every 2 wings, there was 1 beak." Or "For every vote candidate A received, candidate C received nearly 3 votes."*	***Conceptual Understanding*** This task is an example of how a problem targeting conceptual understanding can require limited arithmetic. The problem assesses students' ability to recognize the relationship, not their ability to subtract or reduce a fraction. ***Application*** This task shows a real-world context for learning and solving problems.

Possible Responses:

ENY Task	Math Standards	Element of Rigor
G7 M1 TB L7 – Problem Set #1 Define the constant of proportionality to answer the follow-up question. 1. Bananas are $\$0.59$/pound. a. What is the constant of proportionality, or k? b. How much will 25 pounds of bananas cost?	7.RP.A.2c Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.*	***Conceptual Understanding*** This problem assesses students' ability to recognize a relationship. ***Procedural Skill and Fluency*** Students must apply their knowledge of division, fractions, and multiplicative reasoning to extend the proportional relationship.

Possible Responses:

<table>
<tr><th>ENY Task</th><th>Math Standards</th><th>Element of Rigor</th></tr>
<tr>
<td>G8 M4 TC L22 – Problem Set #2

a. Natalie can paint 40 square feet in 9 minutes. Assuming she paints at a constant rate, write the linear equation that represents the situation.

b. The table of values below represents the area painted by Steven for selected time intervals. Assume Steven is painting at a constant rate.
<table>
<tr><th>Minutes (x)</th><th>Area painted (y)</th></tr>
<tr><td>3</td><td>10</td></tr>
<tr><td>5</td><td>50/3</td></tr>
<tr><td>6</td><td>20</td></tr>
<tr><td>8</td><td>80/3</td></tr>
</table>
Who paints faster? Explain.</td>
<td>8.EE.B.5

Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.</td>
<td>Application

This problem provides a context for learning and the opportunity to solve problems in a relevant and meaningful way. It is through real-world applications like this problem that students learn to select an efficient method to find a solution, determine whether the solution makes sense by reasoning, and develop critical thinking.</td>
</tr>
</table>

Possible Responses:

<table>
<tr><th>ENY Task</th><th>Math Standards</th><th>Element of Rigor</th></tr>
<tr>
<td>Alg 1 M5 TA L2 – Problem Set #1

<table>
<tr><th>X</th><th>Y</th></tr>
<tr><td>0</td><td></td></tr>
<tr><td>1</td><td>10</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>3</td><td>-6</td></tr>
<tr><td>4</td><td>-8</td></tr>
<tr><td>5</td><td></td></tr>
<tr><td>6</td><td></td></tr>
</table>

a. Determine the function type that could be used to model the data set above and explain why.

b. Complete the data set using the special pattern of the function you described above.

c. If it exists, find the minimum or maximum value for the function model. If there is no minimum or maximum, explain why.</td>
<td>A1: F-LE.A.1b

Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.</td>
<td>Conceptual Understanding

Students must make sense of the data, choose a model to best represent the data, and provide justification (why). In order to complete this task, student must be able to determine why a model is most useful for this context.

Students must apply prior knowledge to complete the data set and determine if there is a minimum or maximum value that exists for this scenario.</td>
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