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# AzMerit Practice

Course 3

1

A square pyramid has a surface area of 40 square inches. The lengths of the pyramid's base,  $b$ , and slant height,  $s$ , are whole numbers.


- A. Use the Connect Line tool to draw **one** possible base of the pyramid.
- B. Use the Connect Line tool to draw the face of the pyramid with the base you drew in part A.

Each grid square has a side length that represents 1 inch.


$$SA_{\text{square pyramid}} = 2bs + b^2$$

Delete Add Point Connect Line

**A. One possible base of the pyramid**



**B. The corresponding face of the pyramid**



Grid Item

Backspace CE C ANS

STO RCL

(	)	7	8	9	÷
Sin	sin <sup>-1</sup>	4	5	6	x
Cos	cos <sup>-1</sup>	1	2	3	√
Tan	tan <sup>-1</sup>	0	.	-	+/-
e <sup>x</sup>	ln				+
log	n!				=
1/x	x <sup>y</sup>				
x <sup>2</sup>	x <sup>3</sup>				
π	Abs				

Degrees  
 Radians

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2

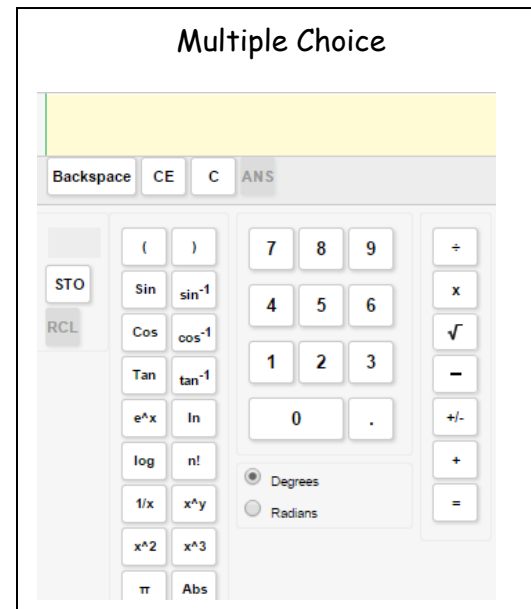
Lindsey used a bag of candy to do a probability experiment. In the experiment, she selected one piece of candy at random from the bag, recorded the color, and put the candy back in the bag. She performed this action 12 times and recorded her results in the table shown.

**Probability Experiment**

Candy Color	Number of Times Selected
Green	2
Orange	1
Purple	4
Yellow	5

Based on the results, what is the probability that the next piece of candy Lindsey selects will be a purple candy?

- (A)  $\frac{1}{4}$
- (B)  $\frac{1}{3}$
- (C)  $\frac{1}{2}$
- (D)  $\frac{2}{3}$



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## AzMerit Practice

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3



Factor  $6x - 9$ .

- (A)  $2(3x - 9)$
- (B)  $3(2x - 3)$
- (C)  $3(3x - 2)$
- (D)  $6(x - 9)$

Multiple Choice

Backspace CE C ANS

STO RCL

( ) 7 8 9 ÷  
Sin sin<sup>-1</sup> 4 5 6 ×  
Cos cos<sup>-1</sup> 1 2 3 √  
Tan tan<sup>-1</sup> 0 . -  
e<sup>x</sup> ln +/-  
log n! +  
1/x x<sup>y</sup> =  
x<sup>2</sup> x<sup>3</sup>  
π Abs

Degrees  
 Radians

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James wants to sort a set of numbers into two groups.

Drag each value to the correct column to show which are rational numbers and which are irrational numbers.

Rational Numbers	Irrational Numbers

$\sqrt[3]{8}$     $\sqrt{3}$     $0.\bar{6}$     $\pi$     $7.3$     $\sqrt{9}$     $\sqrt[3]{9}$

Grid Item

The calculator interface includes a display area at the top, followed by function keys: Backspace, CE, C, and ANS. The main keypad contains:

- Row 1: ( ), )
- Row 2: Sin, sin<sup>-1</sup>
- Row 3: Cos, cos<sup>-1</sup>
- Row 4: Tan, tan<sup>-1</sup>
- Row 5: e<sup>x</sup>, ln
- Row 6: log, n!
- Row 7: 1/x, x<sup>y</sup>
- Row 8: x<sup>2</sup>, x<sup>3</sup>
- Row 9: π, Abs

On the right side of the keypad:

- Row 1: 7, 8, 9, ÷
- Row 2: 4, 5, 6, x
- Row 3: 1, 2, 3, √
- Row 4: 0, ., -
- Row 5: +/-
- Row 6: +
- Row 7: =

At the bottom right, there are radio buttons for  Degrees and  Radians.

5



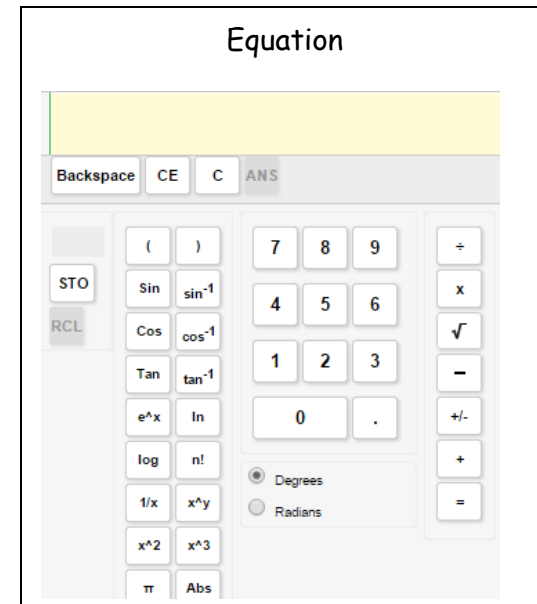
Consider a fraction with the following characteristics:

- It represents a repeating decimal.
- The denominator is less than 10.
- It is less than 0.2.

What could this fraction be?

←→↶↷✖

1	2	3	+	-	•	÷			
4	5	6	<	≤	=	≥	>		
7	8	9	$\frac{\square}{\square}$	$\square^\square$	( )		$\sqrt{\square}$	$\sqrt[\square]{\square}$	$\pi$
0	.	-							



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## AzMerit Practice

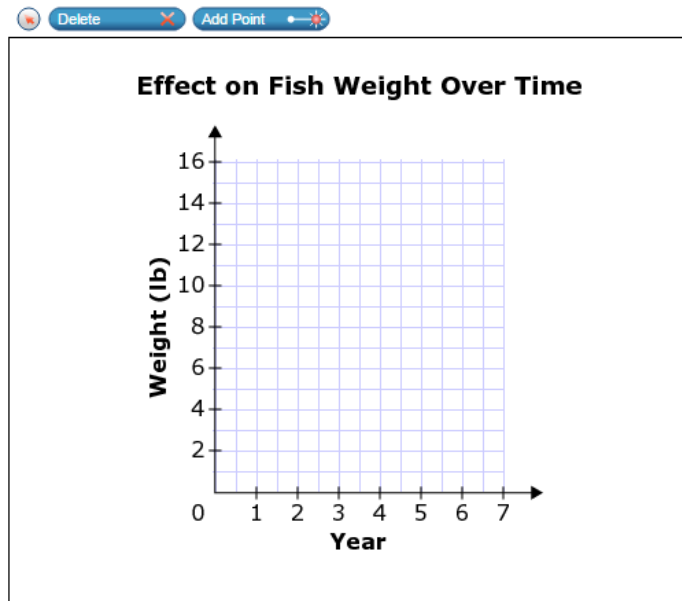
Course 3

6



A scientist is researching changes to a river's ecosystem. He believes something is destroying the food source of the fish in the river over time.

Use the Add Point tool to plot **eight** points to complete a scatter plot so that it supports the scientist's claim.



The figure shows a calculator interface titled "Grid Item". It features a yellow header bar, a display area, and a keypad with various mathematical functions and symbols. The keypad includes buttons for Backspace, CE, C, ANS, STO, RCL, Sin, sin<sup>-1</sup>, Cos, cos<sup>-1</sup>, Tan, tan<sup>-1</sup>, e<sup>x</sup>, ln, log, n!, 1/x, x<sup>y</sup>, x<sup>2</sup>, x<sup>3</sup>, π, Abs, and a numeric keypad (0-9, ., /, ×, √, −, +/−, +, =). The angle mode is set to Degrees.

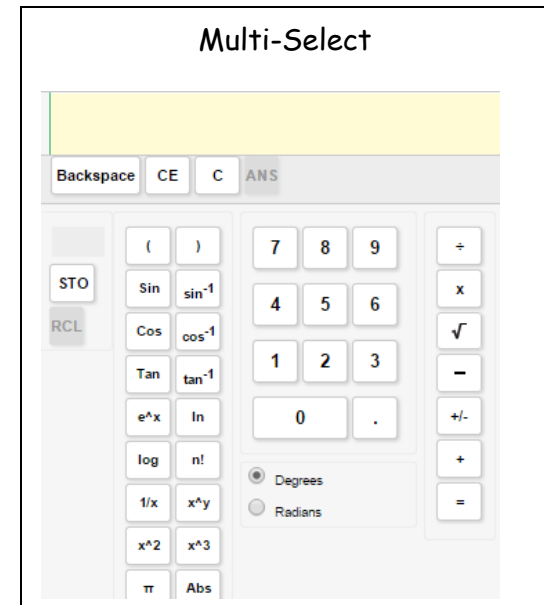
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7



Select all the expressions that are equivalent to  $-7$ .

- $-\frac{14}{2} \times \frac{7}{7}$
- $7 \times -1 \times -1 \times -1$
- $-4 \times \frac{7}{4}$
- $-7 \times -1$
- $7^{-1}$



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## AzMerit Practice

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Michelle is building a rectangular landing strip for airplanes.

She has enough material to cover  $\frac{1}{1,500}$  of a square mile. The landing strip must be  $\frac{1}{6}$  of a mile long.

With the amount of material that Michelle has, what is the greatest possible width of the landing strip, in miles?

←→↶↷✖

1	2	3	+	-	•	÷			
4	5	6	<	≤	=	≥	>		
7	8	9	$\frac{\square}{\square}$	$\square^\square$	( )		$\sqrt{\square}$	$\sqrt[\square]{\square}$	$\pi$
0	.	-							

### Equation

BackspaceCECANS

STO  
RCL

(	)	7	8	9	÷
Sin	sin <sup>-1</sup>	4	5	6	x
Cos	cos <sup>-1</sup>	1	2	3	√
Tan	tan <sup>-1</sup>	0	.		-
e <sup>x</sup>	ln				+/-
log	n!				+
1/x	x <sup>y</sup>				°
x <sup>2</sup>	x <sup>3</sup>				Radians
$\pi$	Abs				=

Degrees

Radians



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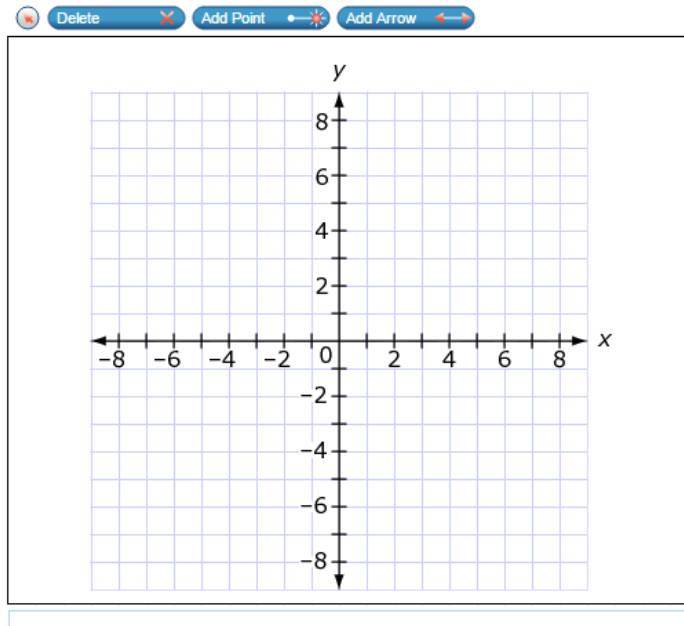
# AzMerit Practice

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9



Use the Add Arrow tool to graph a line that has a slope of  $-3$  and a  $y$ -intercept of  $2$ .



## Grid Item

A calculator interface titled 'Grid Item'. At the top is a yellow grid. Below it are buttons for 'Backspace', 'CE', 'C', and 'ANS'. The main keypad includes:

- STO, RCL, (, ), 7, 8, 9, ÷, x
- Sin, sin<sup>-1</sup>, 4, 5, 6, √
- Cos, cos<sup>-1</sup>, 1, 2, 3, -
- Tan, tan<sup>-1</sup>, 0, ., +/-
- e<sup>x</sup>, ln, +
- log, n!, =
- 1/x, x<sup>y</sup>,  Degrees,  Radians
- x<sup>2</sup>, x<sup>3</sup>, π, Abs

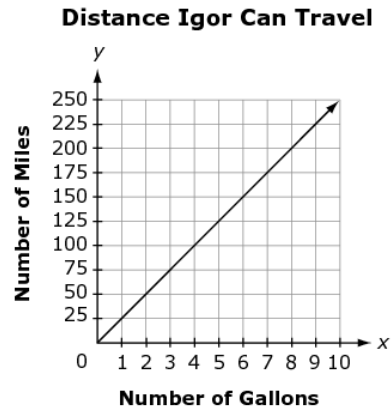
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Igor's car travels 25 miles on a gallon of gas. The car's gas tank has a capacity of 10 gallons. The distance Igor can travel is shown in the graph.



Before his trip, Igor stops at a gas station where 10 gallons of gas costs \$41.90. His gas tank is already  $\frac{2}{5}$  full and he spends \$16.76 on gas.

What is the maximum distance, in miles, Igor can travel with the gas he now has in his tank?

← → ↶ ↷ ✖

1	2	3	+	-	•	÷			
4	5	6	<	≤	=	≥	>		
7	8	9	$\frac{\square}{\square}$	$\square^\square$	( )		$\sqrt{\square}$	$\sqrt[\square]{\square}$	$\pi$
0	.	-							

### Equation

Backspace CE C ANS

STO	(	)	7	8	9	÷
	Sin	sin <sup>-1</sup>	4	5	6	x
RCL	Cos	cos <sup>-1</sup>	1	2	3	$\sqrt{\square}$
	Tan	tan <sup>-1</sup>	0	.		-
	e <sup>x</sup>	ln				+/-
	log	n!				+
	1/x	x <sup>y</sup>				=
	x <sup>2</sup>	x <sup>3</sup>				
	$\pi$	Abs				

Degrees  
 Radians