Unit 5 Pre-Test

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1   **CCSS-MATH 8 F.4**

A table of values for the cost of a phone plan in terms of the time spent on the phone is shown below.

Time (minutes)	Cost ($)
20	17.95
30	19.45
60	23.95

Determine the rate of change for the relationship shown in the table.

Explain what this rate of change means in terms of the phone plan.

2 CCSS-MATH 8 SP.4

The two–way frequency table below breaks down the number of patrons who visited a museum during each of the seasons of a particular year into adults and children.

	Spring	Summer	Fall	Winter	Total
Adults	902	1890	723	1009	4524
Children	96	694	101	85	976
Total	998	2584	824	1094	5500

**Which of these statements are true based on the table? Select three that apply.**

A A patron who visited in the spring was most likely to be an adult.

B A patron who was a child was most likely to visit in the summer.

C A patron who visited in the fall was least likely to be an adult.

D A patron who was a child was least likely to visit in the winter.

3 CCSS-MATH 8 EE.5

Gasoline costs $3.00 per gallon at a gas station.

Graph the proportional relationship between the number of gallons of gasoline and the total cost.
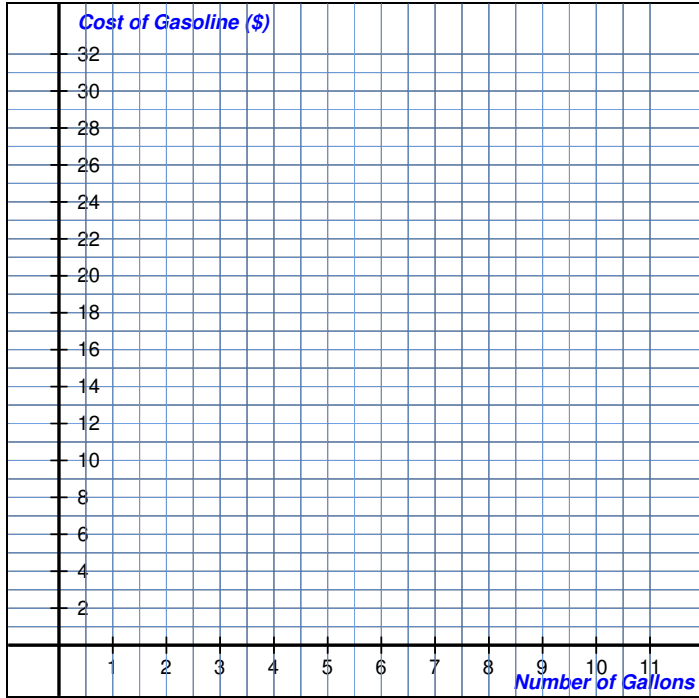
4 CCSS-MATH 8 NS.2

Given that the value of *e*, a widely used irrational number, is approximately 2.7182818, what can you determine if you know that $1.65^2 = 2.7225$?

A that $\sqrt{e}$

is less than 1.65 and is to the right of 1.65 on a number line

B that $\sqrt{e}$

is less than 1.65 and is to the left of 1.65 on a number line

C that $\sqrt{e}$

is greater than 1.65 and is to the right of 1.65 on a number line

D that $\sqrt{e}$

is greater than 1.65 and is to the left of 1.65 on a number line

5 CCSS-MATH 8 F.4

Determine whether each statement is true or false given the linear functions modeled by Table A and Table B.

Table A:

x	y
0	−6
1	−5
2	−4
3	−3
4	−2

Table B:

x	y
0	1
1	2
2	3
3	4
4	5

Select True or False for each statement.

| Statement	True	False
Table A and Table B have equivalent rates of change.	○	○
Table B has a *y*–intercept of 0.	○	○
Table A has a *y*–intercept of –6.	○	○

CCSS-MATH 8 SP.1

Suppose all the points on a scatter plot cluster around the graph of $\frac{1}{2}x - 18$, where *x* represents the value of the variable on the horizontal axis and *y* represents the value of the variable on the vertical axis. Which of these statements are likely true? Select two that apply.

  A   There is a positive association between the two variables.

  B   There is a negative association between the two variables.

  C   There is a linear association between the two variables.

  D   There is a non–linear association between the two variables.

CCSS-MATH 8 EE.5 | CA-MATH 7 AF 3.4

The graph below shows the price four families paid M&H Paving to resurface their driveways. What is the price per square foot that M&H Paving charges when resurfacing driveways?
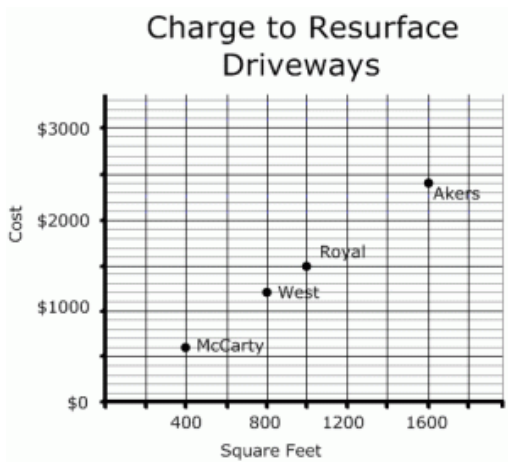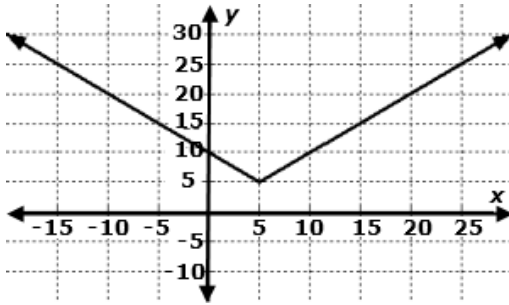

  A $0.15

  B $0.67

  C $1.50

  D $2.00

CCSS-MATH 8 F.5

Which of these describes the function graphed below?

A   *x* is decreasing when *y* is between negative infinity and 5 and increasing when *y* is between 5 and positive infinity

B   *x* is increasing when *y* is between negative infinity and 5 and decreasing when *y* is between 5 and positive infinity

C   *y* is decreasing when *x* is between negative infinity and 5 and increasing when *x* is between 5 and positive infinity

D   *y* is increasing when *x* is between negative infinity and 5 and decreasing when *x* is between 5 and positive infinity

CCSS-MATH 8 F.2

Consider the linear function *y* = 5*x* + 12 and the linear function represented by the table of values below.

x	y
2	29
4	53
6	77
8	101

Select *all* the statements that are correct.

A   The function *y* = 5*x* + 12 has the greater *y*–intercept.

B   The function represented by the table has the greater *y*–intercept.

C   The two functions have the same *y*–intercept.

D   The function *y* = 5*x* + 12 has the greater rate of change.

E   The function represented by the table has the greater rate of change.

F   The two functions have the same rate of change.

CCSS-MATH 8 EE.7b

An equation is shown below.

$$\frac{4}{5}(9x - 20) - 3x = \frac{4}{5}x - 6$$

Enter the value of *x* that makes this equation true.

x = ☐

CCSS-MATH 8 F.4

Abigail wants to attend a community college. Suppose *x* represents the number of credits she takes and *y* represents her total fees in dollars. Which of these statements are correct? Select *three* that apply.

A If tuition amounts to $125 plus $150 per credit, the function that would model this situation is $y = 150x + 125$.

B If tuition amounts to $200 plus $175 per credit, the function that would model this situation is $x = 175y + 200$.

C If tuition amounts to $175 plus $150 per credit, the function that would model this situation is $y = 175x + 150$.

D If tuition amounts to $250 plus $275 per credit, the function that would model this situation is $x = 250y + 275$.

E If tuition amounts to $225 plus $200 per credit, the function that would model this situation is $y = 200x + 225$.

F If tuition amounts to $100 plus $125 per credit, the function that would model this situation is $y = 125x + 100$.

CCSS-MATH 8 EE.7a

Select the equation that has *no* solution.

A $3(2x + 7) = 6(x + 4) - 3$

B $3(6x - 5) = 3(6x - 5) + x$

C $8(x - 3) + 14 = 2(4x + 5)$

D $13x - 7 = 12(x - 1) + x + 5$

CCSS-MATH 8 SP.2

Suppose a scatter plot indicates that there is a positive linear association between two quantitative variables. Which of these statements *must* be correct about the line of best fit for the data in the scatter plot?

A The line must have a positive *x*–intercept.

B The line must have a positive *y*–intercept.

C The line must have a positive slope.

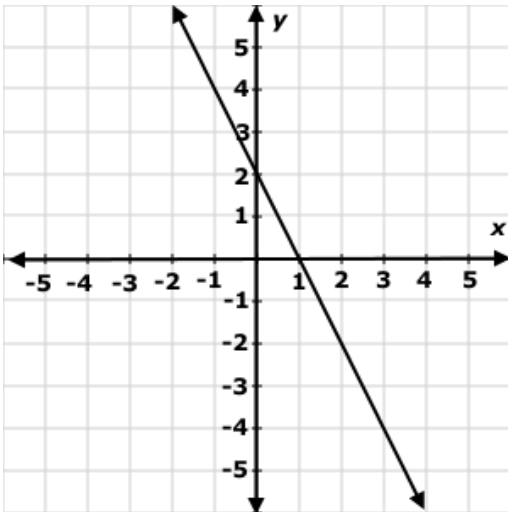**D** The line must have no slope.

14 CCSS-MATH 8 EE.2

Select *two* possible values for *x* in the equation $x^2 = 175$.

A $\dfrac{5}{\sqrt{7}}$

B $\dfrac{5}{\sqrt{35}}$

C $\dfrac{25}{\sqrt{7}}$

D $\sqrt{175}$

15 CCSS-MATH 8 F.3

This graph represents the relationship between *x* and *y*.

Which statements are true of this relationship? Select *two* that apply.

A The equation $y = \dfrac{1}{2}x + 2$ models the relationship.

B The equation $y = 2x - 2$ models the relationship.

C The equation $y = -\dfrac{1}{2}x + 2$ models the relationship.

D The equation $y = -2x + 2$ models the relationship.

E The relationship between *x* and *y* is a linear function.

F The relationship between *x* and *y* is not a linear function.

16   **CCSS-MATH 8 EE.5**

The table below shows the proportional relationship between the time in hours (*h*) Sara babysits and the amount in dollars (*a*) Sara earns babysitting.

h	*a*
2	8
3	12
4	16
5	20

The equation *a* = 5*h* shows the relationship between the amount in dollars (*a*) Abbey earns babysitting and the time in hours (*h*) Abbey babysits.

Which statement correctly identifies who earns more and how much more she earns?

A   Sara earns $1 more per hour than Abbey.

B   Sara earns $4 more per hour than Abbey.

C   Abbey earns $1 more per hour than Sara.

D   Abbey earns $5 more per hour than Sara.

17   **CCSS-MATH 8 F.3**

The equation *y* = *x* + 1 defines the relationship between *x* and *y*, where *x* is the input and *y* is the output.

Which statements about the graph of this relationship are *true*? Select *two* that apply.

A   The graph is a curved line.

B   The graph is a straight line.

C   The graph is a vertical line.

D   The graph represents a function.

E   The graph has no negative outputs.

F   The graph passes through the origin.

CCSS-MATH 8 F.3

Which functions are nonlinear? Select *two* that apply.

A $y = -5$

B $y = \dfrac{x}{3} + 1$

C

x	y
0	−2
1	−4
2	−6
3	−8

D

x	y
1	1
2	$\frac{1}{2}$
3	$\frac{1}{3}$
4	$\frac{1}{4}$

E

F
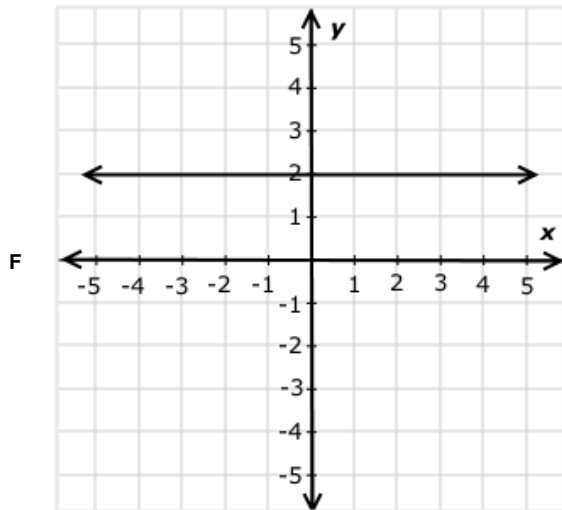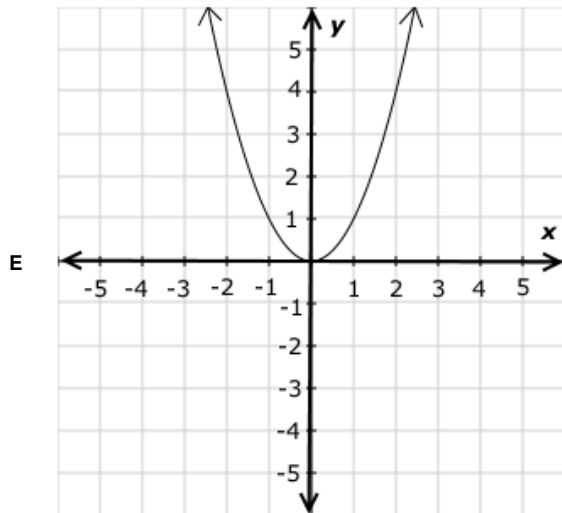
CCSS-MATH 8 NS.1

Which fraction is equal to $0.\overline{57}$?

A $\dfrac{52}{99}$

B $\dfrac{19}{33}$

C $\dfrac{26}{45}$

D $\dfrac{19}{30}$

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20 **CCSS-MATH 8 F.1**

An incomplete table is shown below.

x	y
2	7
6	9
8	6

Fill in the empty cells in the table so that the table of values does *not* represent a function.

Explain your reasoning.
Please answer on a separate page.

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21 **CCSS-MATH 8 SP.3**

A sandwich shop makes home deliveries. The average amount of time from when an order is placed until when it is delivered can be modeled by the equation $y = 2.5x + 5$, where x is the number of miles between the shop and the delivery location and y is the time in minutes. Which of these statements are correct according to the model? Select *two* that apply.

A   The average amount of time the shop needs to prepare the food for delivery is 2.5 minutes.

B   The average amount of time the shop needs to prepare the food for delivery is 5 minutes.

C   On average, it takes the delivery person 2.5 minutes to travel 1 mile.

D   On average, the delivery person travels 2.5 miles every 1 minute.

E   On average, it takes the delivery person 5 minutes to travel 1 mile.

F   On average, the delivery person travels 5 miles every 1 minute.

22 **CCSS-MATH 8 EE.4** | CA-MATH 7 NS 1.1

Which of the following shows 440,000,000 in scientific notation?

A 4.4×10^8

B 4.4×10^7

C 4.4×10^{-7}

D 4.4×10^{-8}

23 **CCSS-MATH 8 EE.1**

An equation is shown below.

$$\frac{2^n \cdot 2}{2^{-5}} = 2^2$$

Enter the value of *n* that makes this equation true.

n = _____