HW #35 – Square Root Functions
MES22 | Spring 2020

Name: _____

Period: ____ **Row:** ____ **Date:** _____

1) Is $y = 3x\sqrt{6}$ a square root function? Explain why or why not.

2) Is the graph of $g(x) = 1.25\sqrt{x}$ a vertical stretch or a vertical compression of the graph of $f(x) = \sqrt{x}$? Explain how you know.

#3-5: Describe the domain and range of each function.

3) $h(x) = \sqrt{x-4}$

4) $p(x) = 2\sqrt{x+7}$

5) $m(x) = 3 + \sqrt{-x}$

Domain:

Range:

#6-9: Match the function to its graph. Explain how you know which graph goes with which function.

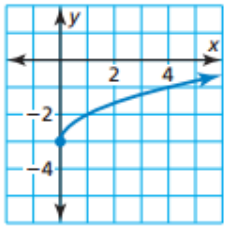
6) $y = \sqrt{x-3}$

7) $y = 3\sqrt{x}$

8) $y = \sqrt{x} - 3$

9) $y = \sqrt{-x-3}$

A.



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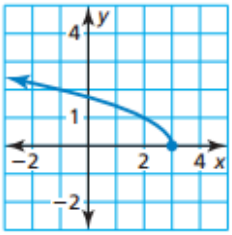

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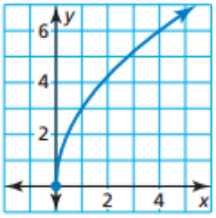

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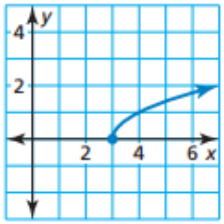
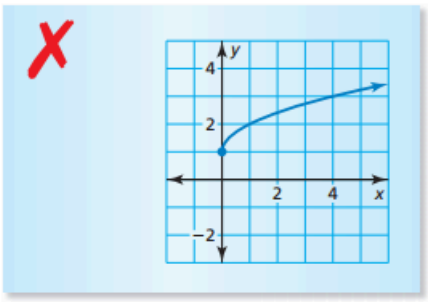


#10-11: Describe the transformation(s) from the parent function $f(x) = \sqrt{x}$.

10) $g(x) = -2\sqrt{x} + 3$

11) $j(x) = \sqrt{-x+10}$

12) Describe and correct the error in graphing the function $y = \sqrt{x+1}$.



13) Consider the function $f(x) = 8a\sqrt{x}$.

a) For what value of a will this function be identical to the graph of the parent square root function?

b) For what values of a will be a vertical compression of the parent square root function?

14) Solve for x using any algebraic method: $4x^2 + 40x = 9$. Express your solution(s) in *simplest radical form*.

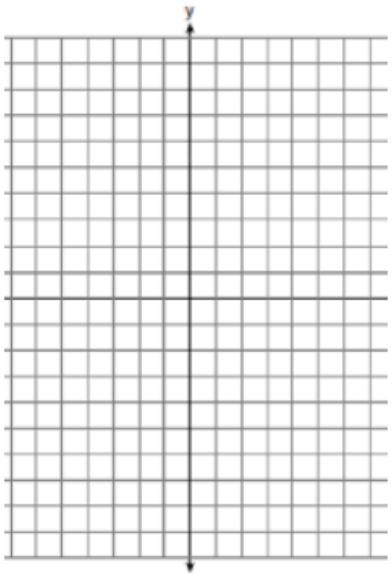
HW #36 – Cubic Functions and Cube Root Functions
MES22 | Spring 2020

Name: _____

Period: ____ **Row:** ____ **Date:** _____

1) Given the function $g(x) = (x-2)^3 + 1$,

a) Describe any transformation(s) from $f(x) = x^3$ to $g(x)$.



b) Use this information to graph $f(x)$ and $g(x)$ on the axes provided.

c) Describe the domain and the range of $g(x)$.

#2-5: Evaluate each expression.

2) $\sqrt[3]{8}$

3) $\sqrt[3]{-125}$

4) $\sqrt[3]{1}$

5) $\sqrt[3]{-27}$

6) Match each function with its graph. Explain how you know which graph goes with which function.

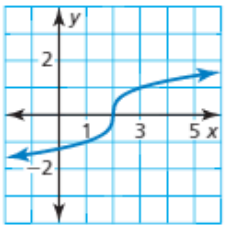
a) $y = \sqrt[3]{x+2}$

b) $y = \sqrt[3]{x-2}$

c) $y = \sqrt[3]{x}+2$

d) $y = \sqrt[3]{x}-2$

A.



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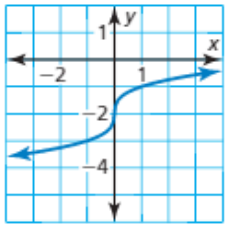

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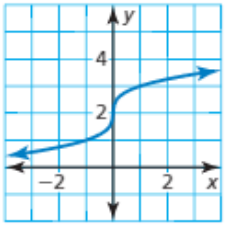

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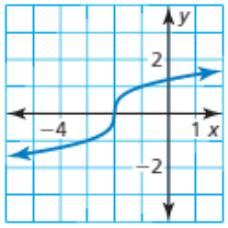
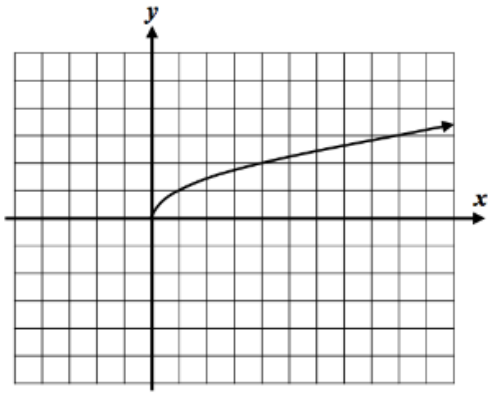


#7-8: Describe the transformation(s) from $f(x) = \sqrt[3]{x}$ to the given function.

7) $p(x) = \frac{1}{3}\sqrt[3]{x-1}+7$

8) $q(x) = -\frac{3}{2}\sqrt[3]{x+4}-3$

9) The graph of $f(x) = \sqrt{x}$ is shown below. Graph $g(x) = -\sqrt{x+2}+5$ on the same set of axes and state its domain and range.



10) Solve the equation: $\frac{x^3}{5} - 4 = 21$

11) Solve the equation: $\frac{x^2}{3} + 7 = 34$

Check-in:

HW #37 – Solving Radical Equations
MES22 | Spring 2020

Name: _____
Period: _____ **Row:** ____ **Date:** _____

#1-6: Solve each equation. Check your solution.

1) $\sqrt{p}-7=-1$

2) $4-\sqrt{a}=2$

3) $2\sqrt{q}+5=11$

4) $\sqrt{b+7}-5=-2$

5) $2=\sqrt{4m-4}-4$

6) $19-4\sqrt{3c-11}=11$

7) The Cave of Swallows is a natural open-air pit cave in Mexico. The 1220-foot-deep cave was a popular destination for BASE jumpers. The function $t=\frac{1}{4}\sqrt{d}$ represents the time t (in seconds) that it takes a BASE jumper to fall d feet. How far does a BASE jumper fall in 3 seconds?

#8-9: Solve each equation. Check your solution.

8) $\sqrt{3g+1}=\sqrt{7g-19}$

9) $\sqrt{2x-5}=\sqrt{\frac{x}{3}+5}$

#11-12: Solve each equation. Check your solution(s).

10) $y=\sqrt{5y-4}$

11) $r+4=\sqrt{-4r-19}$

12) Describe and correct the error in solving the equation.

✗

$$2+5\sqrt{x}=12$$
$$5\sqrt{x}=10$$
$$5x=100$$
$$x=20$$

13) Find the product in standard form:

$(3p-1)(4p+5)$

14) Solve for all values of x:

$(x+2)(x^2+3x-4)=0$

HW #38 – Measures of Center; Range

MES22 | Spring 2020

Name: _____

Period: _____ **Row:** ____ **Date:** _____

1) In a data set, what does a measure of center represent?

2) Briefly describe how removing an outlier will affect the mean of your data set.

#3-4: In each data set, determine and state the mean, median, and mode. Then, determine which measure of center best represents the data. Explain your choice.

3) 12, 9, 17, 15, 10

4) 14, 15, 3, 15, 14, 14, 18, 15, 8, 16

5) The table shows the masses, in kg, of eight polar bears.

Masses (kilograms)			
455	262	471	358
364	553	62	351

a) Identify the outlier. How does the outlier affect the mean, median, and mode?

b) Calculate the range. How does the outlier affect the range?

c) Describe one possible explanation for the outlier.

6) The scores of two golfers are shown.

a) Find the range of scores for each golfer. Which golfer plays more consistently?

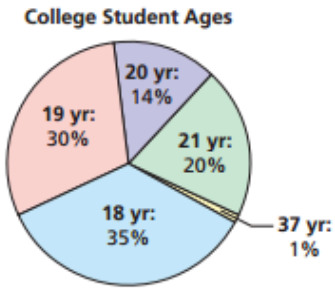
b) Find the average score for each golfer. Which golfer is typically a better golfer?

Golfer A		Golfer B	
83	88	89	87
84	95	93	95
91	89	92	94
90	87	88	91
98	95	89	92

7) The numbers in a set of data are 2, 8, 9, 7, 6, and x. If the mean of the set of data is 6, what is the value of x?

8) So far this semester, you have had 4 essays in Global, and your essay average is an 89. What score must you get on your fifth essay in order to raise your average to a 90?

9) The pie chart shows the distribution of the ages of 200 students in a college Psychology I class.



a) Find the mean, median, and mode of students' ages.

b) How many outliers are there? What measure of center will be most affected by this?

10) Solve the inequality and state the largest integer in the solution set: $6x+1<4x-9$

HW #39 – Standard Deviation; Dot Plots
MES22 | Spring 2020

Name: _____

Period: ____ **Row:** ____ **Date:** _____

#1-2: In each data set, calculate the range and the standard deviation. Round th`e standard deviation to the *nearest hundredth*.

1) 40, 35, 45, 55, 60

2) 8.2, 10.1, 2.6, 4.8, 2.4, 5.6, 7.0, 3.3

3) The scores of two golfers are shown.

a) Find the mean and the standard deviation of the scores for Golfer A. Interpret the standard deviation. Round the standard deviation to the *nearest tenth*.

b) Find the mean and standard deviation of the scores for Golfer B. Interpret the standard deviation. Round the standard deviation to the *nearest tenth*.

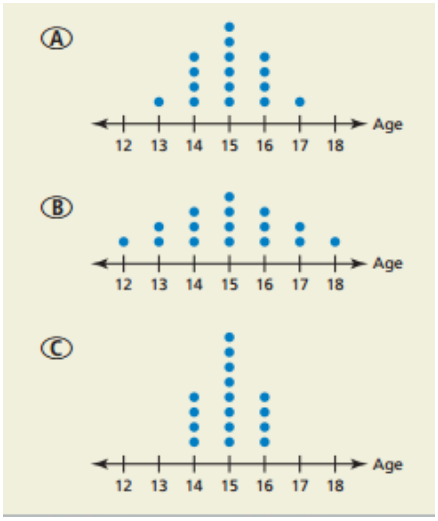
Golfer A		Golfer B	
83	88	89	87
84	95	93	95
91	89	92	94
90	87	88	91
98	95	89	92

c) Compare the standard deviation for Golfers A and B. What does this tell you about the two golfers?

4) Your friend says that when two data sets have the same range, you can assume the two data sets also have the same standard deviation, because both range and standard deviation are measures of variation. Is your friend correct? Justify your answer.

#5-7: The dot plots show the ages of the members of three different adventure clubs.

5) Without performing calculations, which data set has the greatest standard deviation? Which has the least standard deviation? Explain your reasoning.



6) Calculate the range of graphs (A), (B), and (C).

7) How would you describe the shape of each dot plot ?

8) The dot plot shows time studying for a test in a recent Living Environment test.

a) How many students are in the class?

b) What term would best describe the shape of this graph?

c) Calculate the mean time studying.

d) Calculate the standard deviation and interpret this result. (round to the *nearest tenth*)

9) Write an equation of the line that has a slope of $\frac{3}{4}$ and passes through the point $(2, 1)$.

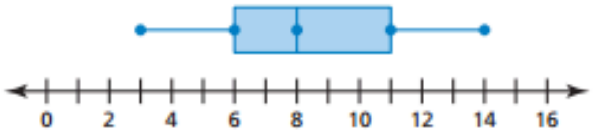
HW #40 – Box Plots
MES22 | Spring 2020

Name: _____

Period: _____ **Row:** ____ **Date:** _____

1) Explain what it means if a number is at the 75th percentile of a set of data.

#2-7: Use the boxplot to find each measure.



2) least value

3) greatest value

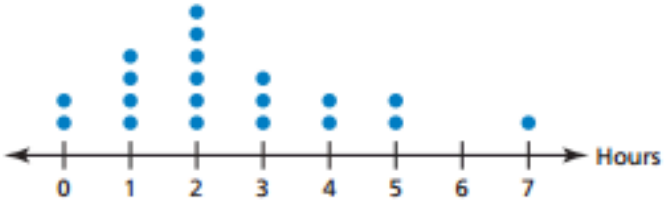
4) third quartile

5) first quartile

6) median

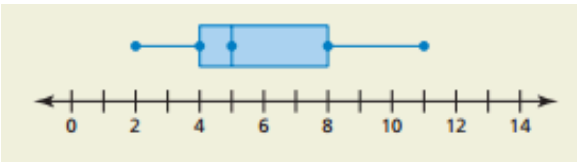
7) range

8) The dotplot represents the number of hours students spent studying for an exam. Make a boxplot that represents the data.

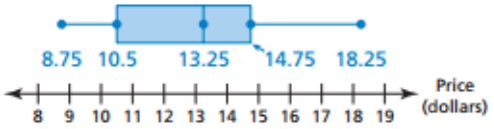


9) The boxplot represents a data set. Determine whether the statement *must* be true. Explain your reasoning.

a) The data set contains the value 11.



10) The boxplot represents the prices (in dollars) of the entreés at a restaurant.



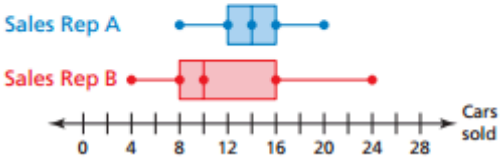
a) Find and interpret the range of the data.

b) Find and interpret the interquartile range (IQR) of the data.

c) Are the data more spread out below Q1 or above Q3? Explain your reasoning.

11) The double boxplot represents the monthly car sales for a year for two different representatives.

a) Which representative's sales are more variable? Explain your reasoning.



b) Which representative had the single worst sales month during the year? Explain your reasoning.

12) Rewrite $h(x) = -x^2 - 2x + 24$ in vertex form

13) Factor: $x^2 + 5x - 14$

Check-in:

HW #41 – Histograms
MES22 | Spring 2020

Name: _____

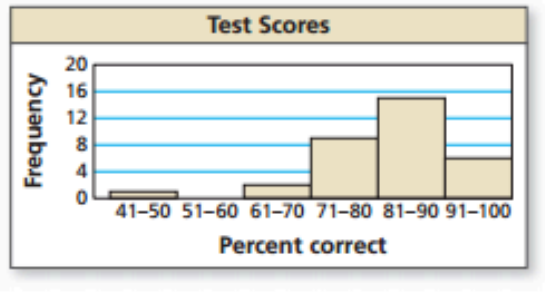
Period: ____ **Row:** ____ **Date:** _____

1) The frequency table shows the results of a survey that asked people how many hours they spend online per week. Display the data in a histogram.

Hours online	Frequency
0–3	5
4–7	7
8–11	12
12–15	14
16–19	26
20–23	45
24–27	33

Describe the shape of this distribution.

2) The histogram shows results of a recent Chemistry test.



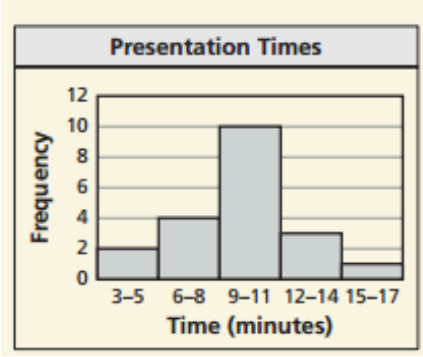
a) Explain why you cannot determine how many students scored 100 on this test.

b) Your friend says that most of the data are on the right, so the distribution is skewed to the right. Is your friend correct? Explain.

c) Which measure of center would best represent the data? Explain your reasoning.

3) If you took a survey of 300 LaGuardia students to determine how many minutes it took them to get to school today, should you best use a dotplot or a histogram to display the results? Explain your choice.

4) The histogram shows the times, in minutes, of 20 presentations in your Global class.



a) What measure of center best represents this data? Explain.

b) Your teacher said that the presentation was supposed to be 10 minutes long.
How would you interpret these results?

5) Over the last 12 days, the number of minutes you practiced violin are: 20, 50, 60, 40, 40, 30, 60, 40, 50 20, 20, 35

What is the average amount of time you spent practicing?

What is the standard deviation of time you spent practicing? Round to the *nearest tenth* of a minute and interpret the result.

6) Which set of coordinates is a solution to the equation $2x - y = 11$?

(1) $(-6, -1)$
(2) $(-1, 9)$
(3) $(0, 11)$
(4) $(2, -7)$

7) Peter walked 8,900 feet from home to school.
How far, to the *nearest tenth of a mile*, did he walk?

1 mile = 5,280 feet

(1) 0.5
(2) 0.6
(3) 1.6
(4) 1.7

HW #42 – Two-Way Tables
MES22 | Spring 2020

Name: _____

Period: _____ **Row:** ____ **Date:** _____

1) You conduct a technology survey to publish on your school's website. You survey students in the school cafeteria about the technology devices they own. The results are shown in the two-way table.

		Tablet Computer	
		Yes	No
Cell Phone	Yes	34	124
	No	18	67

a) How many students did you survey?

b) What percentage of students have a cell phone?

c) What percentage of students do *not* have a tablet computer?

d) Of the students who have a tablet computer, what percentage have a cell phone?

2) You conduct a survey that asks students whether they plan to participate in the upcoming school spirit week. The results are shown in the two-way table.

		Participate in Spirit Week		
		Yes	No	Undecided
Class	Freshman	112	56	54
	Sophomore	92	68	32

a) How many students are in the freshman class?

b) What percentage of freshmen will participate in the spirit week?

c) What percentage of students surveyed *have decided* about their participation?

d) What percentage of sophomores will *not* participate in spirit week?

3) Complete the two-way table.

		Traveled on an Airplane		
		Yes	No	Total
Class	Freshman		62	
	Sophomore	184		
	Total	274		352

4) You conduct a survey that asks 245 students in your school whether they have taken a Spanish or a French class. One hundred nine of the students have taken a Spanish class, and 45 of those have taken a French class. Eighty-two of the students have not taken a Spanish or a French class. Organize the results in a two-way table.

5) A box-office sells 1809 tickets to a play, 800 of which are for orchestra (main floor) seats; the rest are in the balcony. The tickets consist of $2x + y$ adult tickets on the main floor, $x - 40$ child tickets on the main floor, $x + 2y$ adult tickets in the balcony, and $3x - y - 80$ child tickets in the balcony.

a) Solve for x and y. Use this information to complete a two-way table

b) What percentage of tickets sold are adults?

c) What percentage of child tickets are in the balcony?
