

Name: \_\_\_\_\_

7<sup>th</sup> into 8<sup>th</sup> Summer  
Work

## 7M Chapters 1 & 2 Review

Directions: Evaluate each expression without using a calculator. Show all of your work.

19.  $12 - (-4)$

20.  $25 - (-16)$

25.  $-5 - 3 - (-4)$

21.  $8 + (-10)$

22.  $-11 + (-28)$

27.  $-108 - (-113)$

23.  $3 + (-8) + 7$

24.  $-6 + 8 - 5$

28.  $33 + (-85) - (-12)$

29.  $-14 \cdot 6$

30.  $-99 \div (-9)$

31.  $\frac{5}{16} \cdot \left(-\frac{8}{15}\right)$

32.  $-\frac{3}{8} \div \left(-\frac{27}{6}\right)$

33.  $1\frac{5}{11} \cdot \left(-2\frac{1}{5}\right)$

34.  $\frac{\left(-\frac{2}{3}\right)}{\left(3\frac{1}{6}\right)}$

35.  $-4[10 - (-7)] + [(-9) + 3(-4)] \div 7$

36.  $\frac{3}{5}\left(\frac{1}{3} - \frac{5}{6}\right) + 1\frac{4}{15} + 2\left(-\frac{9}{20}\right)$

37.  $-3[4.1 - (-2.3)] - 0.4[-6.7 + 3(2.4)]$

38.  $-\frac{1}{4}[-18 + 2.4(-3.5 + 2.5)] + 2\frac{1}{4} + (-8.4)$

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## 7M Chapters 1 & 2 Review

1. The speed of 4 racing cars are 146.633 miles per hour, 150 miles per hour, 151.971 miles per hour, and 141.428 miles per hour. Find the average speed of the 4 cars.
2. A diver was swimming 62 feet below sea level. He then dove 39 feet further down. He ascended 48 feet after a while. Find the new depth of the diver:
3. A football team gained 15 yards on a first down, lost 12 yards on the second down, and lost another 6 yards on the third down. How many yards does the team need to gain on the fourth down to have a 10 yard gain from their starting position?
4. Find the difference in height between the top of a 864-foot hill and shifting rock 68 feet below sea level.
5. A 30 question survey gives the following points for responses A, B, C, and D: A = 5, B = 3, C = - 2, and D = - 4. A person's score is found by totaling the points for all responses. Jason gave 8 A responses, 6 B responses, 12 C responses, and 4 D responses. Find Jason's score for the survey.
6. The highest temperature ever recorded in Bolivia was 116.1°F in Villamontes, Tarija Department. The lowest temperature ever recorded was - 14.3°F in Uyuni, Potosi Department. Find the range of temperatures in Bolivia.
7. Two wooden planks have a length of  $4\frac{1}{4}$  feet and  $2\frac{1}{2}$  feet. A new plank is created by overlapping the ends of the two planks using diagonal cuts and fastening them together. If the length of the overlap is 5 inches long, what is the length, in feet, of the new plank?
8. A hot air balloon was flying at an altitude of 2,150 feet. It took the balloon 4 minutes to descend to 1,430 feet. Find the average change in balloon height.

## Cumulative Practice for Chapters 3 to 5

**Simplify each expression.**

1.  $5.8m + 2.3n - 4.9m - 1.7n$

2.  $\frac{3}{7}x + \frac{5}{8} - \frac{3}{14}x + \frac{1}{4}$

**Expand and simplify each expression.**

3.  $-0.6(x + 3y) - 0.4x$

4.  $-\frac{1}{2}\left(\frac{2}{3}x - 4\right)$

5.  $4\left(\frac{1}{5}x - 3y\right) + 7y - \frac{1}{3}x$

6.  $-6(m + 3n) - 4(2m - n)$

**Factor each expression.**

7.  $-9x - 45$

8.  $18 - 30w + 6k$

**Translate each verbal description into an algebraic expression. Simplify the expression when possible.**

9. 45% of two-fifteenths of the product of  $(x + 1)$  and one-twelfth  $y$

10. Ten-ninths of the sum of  $3x$ ,  $12y$ , and  $-6z$

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**Tell whether each pair of equations are equivalent.**

11.  $5x + 1 = 11$  and  $2x = 4$

12.  $\frac{1}{3}y = 1$  and  $y + 1 = 2$

**Solve each equation.**

13.  $10.4 + 2.5y = 15.4$

14.  $1.8(5 - 2y) = 0.9y$

15.  $2(3p - 4) - 3(5 - 2p) + 18 = 19$

16.  $9.6 - 2(4.5y + 3) = 1.2(2y - 3) + 3y$

**Solve each inequality. Then graph each solution set on a number line.**

17.  $2 - 2(x - 3) > x - 7$

18.  $m - \frac{1}{6}m - 1 \leq \frac{1}{3}m + 1$

19.  $11.8 - 0.7b < -9.2$

20.  $7 - 4(5y - 3) \leq 2(3 - y) - 5$

# Cumulative Practice

## for Chapters 6 to 8

**Tell whether each pair of angles are supplementary, complementary, or neither.**

1.  $m\angle 1 = 24^\circ$  and  $m\angle 2 = 76^\circ$

2.  $m\angle 3 = 117^\circ$  and  $m\angle 4 = 63^\circ$

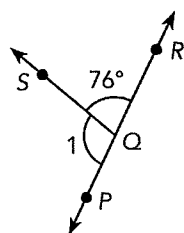
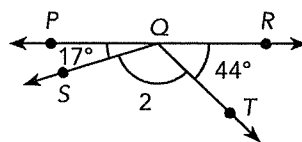
3.  $m\angle 5 = 32^\circ$  and  $m\angle 6 = 58^\circ$

4.  $m\angle 7 = 130^\circ$  and  $m\angle 8 = 70^\circ$

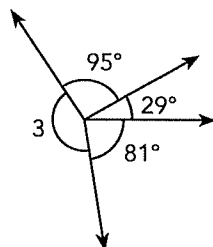
5.  $m\angle 9 = 2^\circ$  and  $m\angle 10 = 88^\circ$

6.  $m\angle 11 = 195^\circ$  and  $m\angle 12 = 5^\circ$

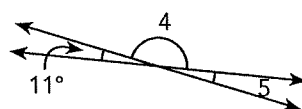
**These figures may not be drawn to scale. Find the measure of each numbered angle.**

7.  $\overleftrightarrow{PR}$  is a straight line.8.  $\overleftrightarrow{PR}$  is a straight line.

9.



10.

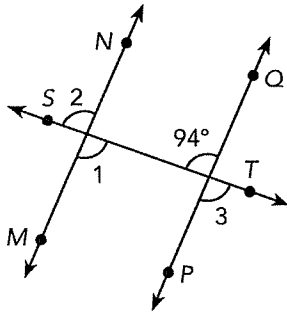


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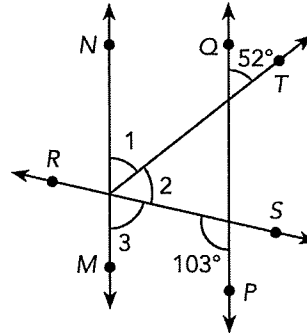
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These figures may not be drawn to scale.  $\overleftrightarrow{MN}$  is parallel to  $\overleftrightarrow{PQ}$ ; find the measure of each numbered angle.

11.

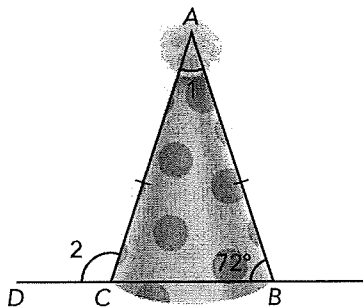


12.

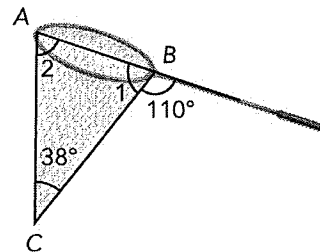


These figures may not be drawn to scale. Find the measures of  $\angle 1$  and  $\angle 2$  in each diagram.

13.  $\triangle ABC$  is an isosceles triangle.



14.



**Use the given information to construct each polygon.**

15. Construct  $\triangle ABC$  given that  $BC = 4$  cm,  $m\angle ABC = 25^\circ$  and  $m\angle BCA = 120^\circ$ .
- Measure  $AB$  and  $AC$ .
  - Find the measure of  $\angle CAB$  without the use of any protractor.
  - Using a straightedge and compass, construct the perpendicular bisector of  $\overline{AB}$ .
  - Using a straightedge and compass, construct the angle bisector of  $\angle ABC$ . Extend the angle bisector until it meets  $\overline{AC}$  at point  $X$ . Label  $X$  in your construction. Is  $X$  the midpoint of  $\overline{AC}$ ? Give a reason for your answer.
  - The two bisectors meet at a point  $Y$ . Label  $Y$  in your construction.
  - Measure the length of  $\overline{XY}$ .

SKIP

16. In quadrilateral  $ABCD$ ,  $AB = 6$  cm,  $BC = 4.2$  cm,  $AD = 8.5$  cm,  $m\angle ABC = 90^\circ$  and  $m\angle BCD = 145^\circ$ .
- Construct quadrilateral  $ABCD$  using the given dimensions.
  - Join points  $A$  and  $C$  and find the measure of  $\angle ACD$ .
  - What kind of triangles are triangle  $ABC$  and triangle  $ACD$ ?
  - Using a compass and straightedge, construct the perpendicular bisector of  $AD$ .
  - The bisector meets  $\overline{AC}$  at point  $P$ . Label  $P$  in your construction. What can you say about the lengths of  $\overline{AP}$  and  $\overline{DP}$ ? Classify triangle  $APD$ .
  - Find the measure of  $\overline{AP}$ .

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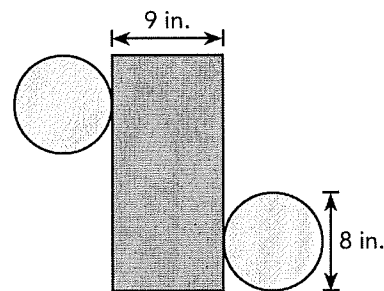
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**Solve. Show your work. Round your answers to the nearest tenth if necessary.**

17. The actual length of the Titanic was 882.75 feet long. If a model of the Titanic is constructed using a scale of 1: 600, what is the length of the model?

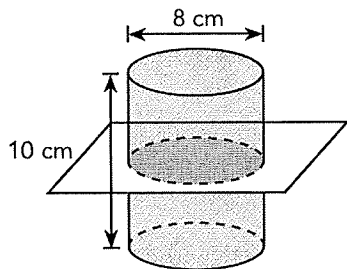
18. A designer draws a scale drawing of the "flower carpet" set up in the Grand Place in Belgium. Using a scale of 1 inch : 20 feet, what is the area in the drawing if the actual floor area is 19,000 square feet?

19. The diagram shows the net of a solid. Find the volume of the solid. Use 3.14 as an approximation for  $\pi$ .

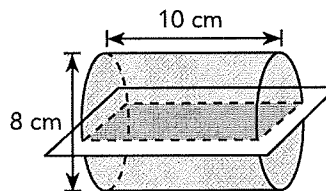


**For each solid, name the shape of the cross section formed when the solid is intersected by the plane shown. Then determine the area of each cross section.**

20. Slicing a cylinder horizontally in a direction parallel to the base



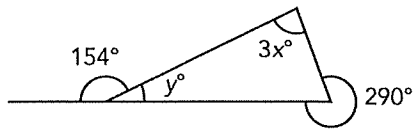
21. Slicing a cylinder in a direction that is perpendicular to the base



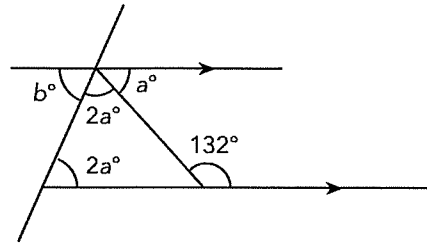


**These figures may not be drawn to scale. Find the value of each variable.**

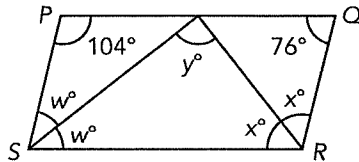
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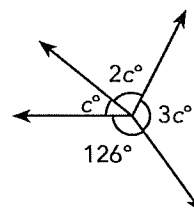
36.



37.  $PQRS$  is a parallelogram.

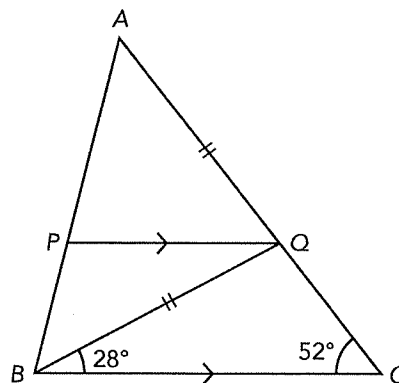


38.



**Solve. Show your work. Round your answers to the nearest tenth if necessary.**

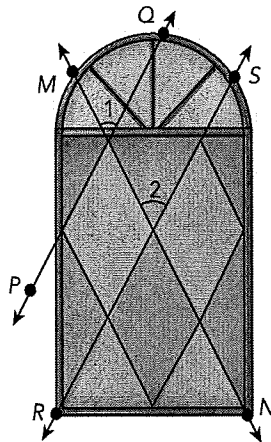
39. In triangle  $ABC$ ,  $AQ = BQ$  and  $\overrightarrow{PQ}$  is parallel to  $\overrightarrow{BC}$ . Given that  $m\angle QBC = 28^\circ$  and  $m\angle QCB = 52^\circ$ , find the measure of  $\angle APQ$ .



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40. The diagram shows  $\angle 1$  and  $\angle 2$ , which are formed by  $\overleftrightarrow{MN}$  intersecting  $\overleftrightarrow{PQ}$  and  $\overleftrightarrow{RS}$ . In the diagram,  $m\angle 1 = (7x + 2)^\circ$ ,  $m\angle 2 = (9x - 14)^\circ$ , and  $x = 8$ . Show that  $\overleftrightarrow{PQ}$  is parallel to  $\overleftrightarrow{RS}$ .



41. a) Campsites  $A$  and  $B$  are 500 miles apart. A map on which they are shown is drawn to a scale of 1 inch : 8 miles. A headquarter site  $S$  is planned to be built at a location that is 364 miles from each of the two campsites. What will be the distance on the map between points  $A$  and  $S$ , points  $B$  and  $S$ , and points  $A$  and  $B$ ?

- b) A rectangular playing field shown on the map has an area of 45 square inches. What would this area be on another map drawn to a scale of 1 inch : 5 miles?

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## Cumulative Practice for Chapters 9 and 10

**Find the range, the three quartiles, and the interquartile range.**

1. 45, 28, 25, 17, 30, 58, 67, 36, 34, 15, 11, 60
2. 146.7, 134.9, 105.6, 99.4, 127.3, 122.1, 170.5, 111.5, 160.7, 158.1



**Find the mean absolute deviation. Round your answers to the nearest hundredth where necessary.**

3. 60, 57, 31, 44, 85, 90, 51, 54, 83, 78
4. 12.0, 14.8, 11.3, 18.5, 22.6, 28.9, 18.0, 26.7, 23.5, 30.0, 16.4, 18.6


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**Use the information to answer questions 11 to 14.**

The table shows the times, in minutes, of 18 cross-country mountain cyclists.


140	184	200	128	220	137	240	305	163
200	185	210	125	137	229	233	301	219

11. What is the range?
12. Find the values of the three quartiles.
13. What is the interquartile range?
14.  What is the MAD? Round your answer to the nearest hundredth.

**Use the data in the table to answer questions 15 to 17.**

The table shows the number of times 20 game contestants hit a target within a specific time interval.

10	4	17	8	10	5	2	12	16	3
16	12	5	11	18	8	9	14	11	7

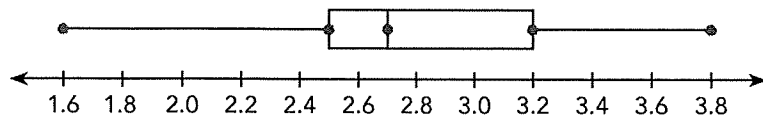
15. Calculate  $Q_1$ ,  $Q_2$ , and  $Q_3$ .
16. Draw a box plot of the data.
17.  Calculate the MAD. Round your answer to the nearest tenth.

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**Use the box plot to answer questions 18 to 20.**

The box plot below summarizes the grade point average of 520 students.



18. State the 5-point summary.
19. How many students have a grade point average less than 3.2?
20. How many students have a grade point average that falls between 2.5 and 2.7?

**Solve. Show your work.**

21. 10 trees were randomly selected from a garden. The girth of each tree was measured, in centimeters, and recorded in the table.

42	26	29	55	30
56	19	34	45	22

Use the measures of the trees to generate the sample mean girth. Then estimate the population mean girth of trees in the garden and the MAD.

22. You select an integer randomly from 1 to 100.
  - a) How many outcomes are in the sample space?
  - b) If  $X$  is the event that the selected integer is a factor of 1,650, what are the outcomes favorable to event  $X$ ?
  - c) Find  $P(X)$ .
  - d) If  $Y$  is the event that the selected integer is a multiple of 7, what is the probability of the complement of event  $Y$ ?

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**27.** A survey was conducted on 250 randomly selected people. The people were asked if they exercise in a gymnasium or if they exercise outdoors. Of the people surveyed, 120 people stated gymnasium, 100 people stated outdoors, and 42 people stated neither.

**a)** Find the number of people surveyed who exercise in a gymnasium and outdoors.

**b)** Draw a Venn diagram to represent the results of the survey.

**c)** Complete the following relative frequency table. Write each relative frequency as a percent.

<b>Exercise Location</b>	Gymnasium only	Outdoors only	Both gymnasium and outdoors	Neither
<b>Relative Frequency</b>				

**d)** Draw a relative frequency bar graph that uses percent.

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28. The table shows the height distribution of some children.

Height ( $h$ inches)	$40 \leq h < 45$	$45 \leq h < 50$	$50 \leq h < 55$	$55 \leq h < 60$
Frequency	30	51	21	23

a) Construct the probability model. Express each probability as a percent.

b) If a child is randomly selected, what is the probability that the selected child has a height between 45 inches and 55 inches?

c) Represent the probability distribution in a histogram that uses percent.

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- 29.** Carbon emissions from a vehicle is measured in grams of carbon dioxide emitted per kilometer. The table shows the amount of carbon emission, in grams per kilometer, from 16 randomly selected vehicles.

249	205	249	214	168	226	193	173
224	197	150	249	200	144	138	164

- a)** Group the data into 4 intervals: 130–160, 160–190, 190–220, and 220–250. *Note:* The interval 130–160 includes masses greater than or equal to 130 g/km, but less than 160 g/km.
- b)** Construct the probability model. Express each probability as a fraction.
- c)** Represent the probability distribution in a histogram that uses fraction.
- d)** Is the probability distribution uniform? State your reason.