

Grade 8 Review

Term 3

Name	
Class	

Mr. Mohammad Rousan

تعليمات الامتحان	
15	عدد الاسئلة الموضوعية
4	علامات الاسئلة الموضوعية (السؤال واحد)
5	عدد الاسئلة الكتابية
(9-7)	علامات الاسئلة الكتابية (السؤال الواحد)
100	العلامة الكاملة
ساعتان و نصف	مدة الامتحان
غير مسموحة	الآلة الحاسبة

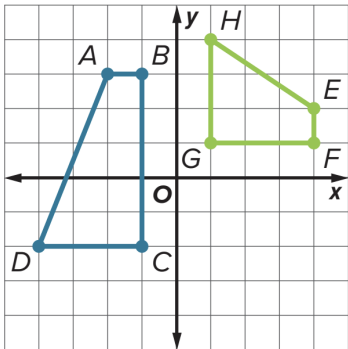
Part A

Multiple choice Questions
الاسئلة الموضوعية

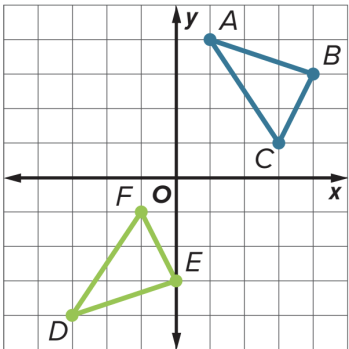
Part 1: Congruence and Transformations (page 491,492)

1,2) Determine if each pair of figures are congruent. If so, describe a **sequence of transformations** that maps one figure onto the other. If not, explain why they are not congruent.

1.



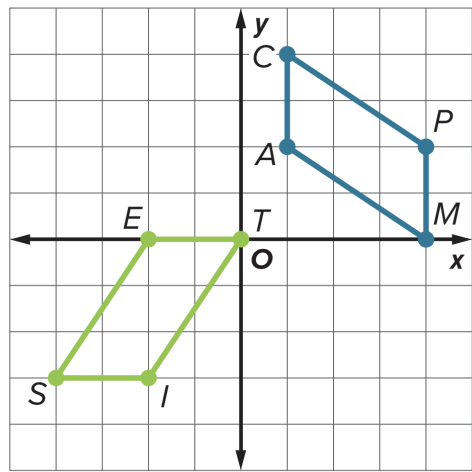
2.



Answer :

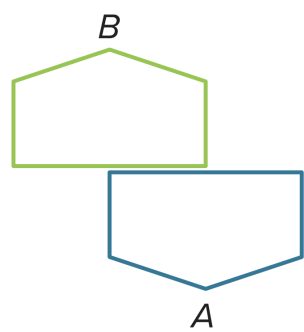
Answer :

3) Parallelogram CAMP is congruent to parallelogram SITE. Determine which **sequence of transformations** maps parallelogram CAMP onto parallelogram SITE.



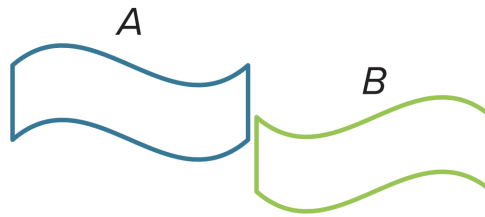
Answer :

4) For his school web page, Manuel created the logo shown at the right. What **transformations** could be used to create the logo if Figure A is the **preimage** and Figure B is the **image**? Are the two figures congruent?



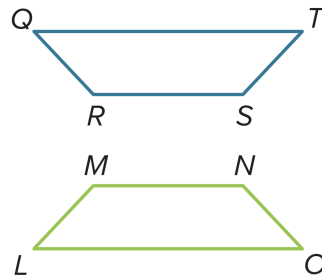
Answer :

5) For the local art gallery opening, the curator had the design shown at the right created. What transformations could be used to create the design if Figure A is the **preimage** and Figure B is the **image**? Are the two figures congruent?



Answer :

6) Trapezoid QRST and its **image** are shown. What **transformation** maps trapezoid QRST onto trapezoid LMNO?

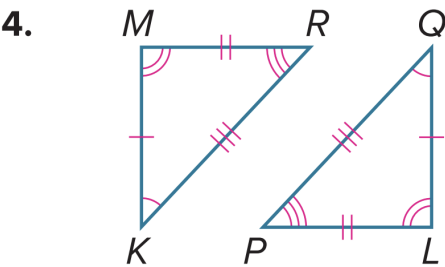
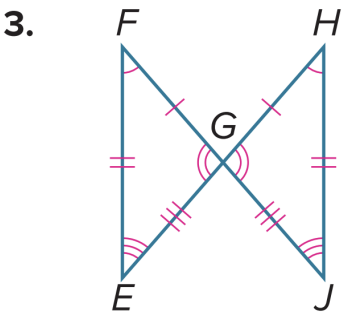
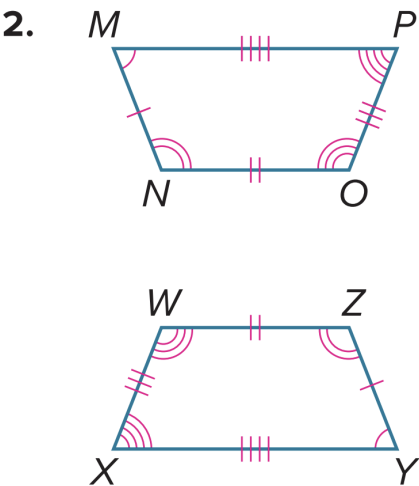
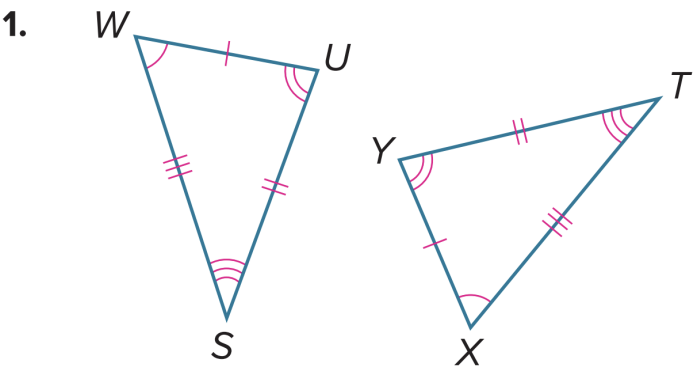


Answer :

1. dilation about vertex R
2. vertical translation
3. reflection across a horizontal line
4. rotation about vertex Q

Part 2: Congruence and Corresponding Parts (page 499,500)

6) Write congruence statements comparing the corresponding parts in each set of congruent figures.



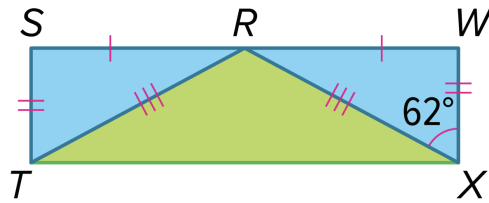
Answer :
Picture 1

Picture 2

Picture 3

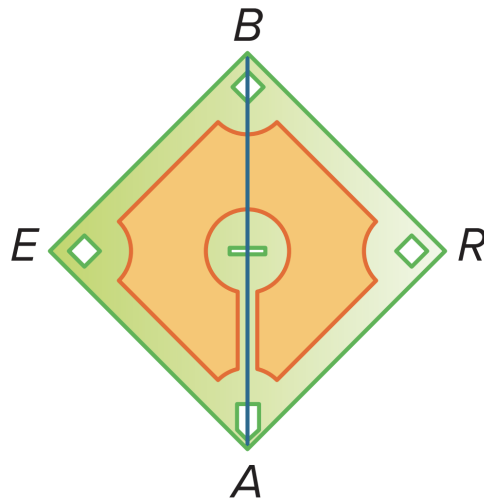
Picture 4

7) In the quilt design shown, $\triangle RST \cong \triangle RWX$. If $m\angle WXR = 62^\circ$, what is the measure of $\angle STR$?



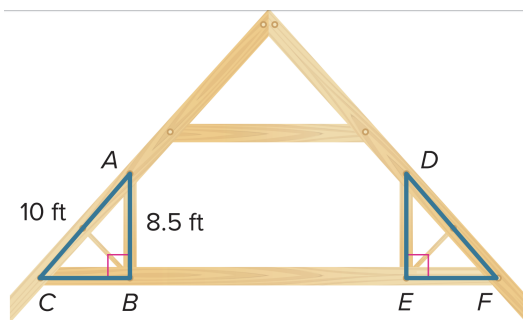
Answer :

8) In the baseball diamond shown, $\triangle BEA \cong \triangle ARB$. The length of $\overline{BE}$ is 90 feet. What is the length of $\overline{AR}$?



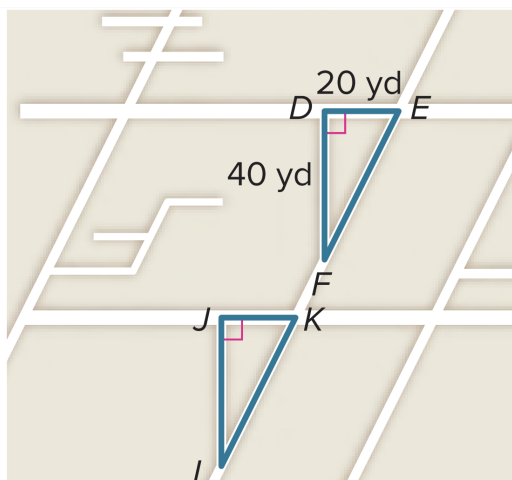
Answer :

9) In the roof construction shown, $ABC \cong DEF$. If $AB = 8.5$ feet and $AC = 10$ feet, what is the length of $\overline{EF}$? Round to the nearest tenth.



Answer :

10) In the city park map shown, $DEF \cong JKL$. The distance from D to E is 20 yards and the distance from D to F is 40 yards. What is the distance from K to L ? Round to the nearest tenth.



Answer :

Part 3: Similarity and Corresponding Parts (page 521)

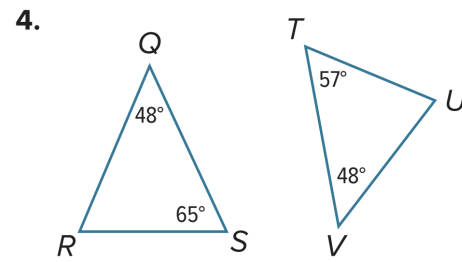
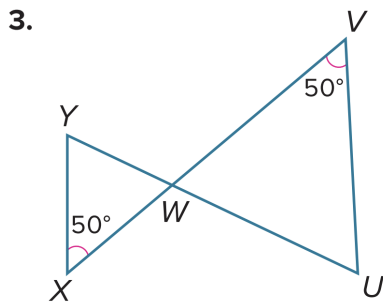
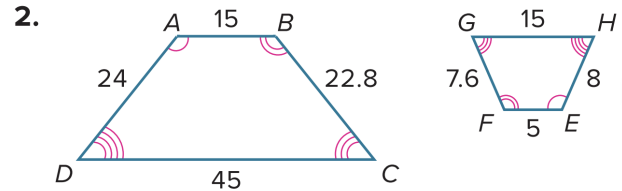
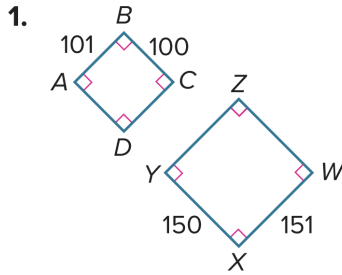
- If two polygons are similar, then their corresponding angles are congruent and the lengths of the corresponding sides are proportional.

إذا كان مضلعان متشابهين، فإن زواياهما المتناظرة متطابقة، وأطوال أضلاعهما المتناظرة متناسبة.

- If two angles of one triangle are congruent to two angles of another triangle, then the triangles are similar.

إذا كانت زاويتان من مثلث ما متطابقتين مع زاويتين من مثلث آخر، فإن المثلثين متشابهان.

11) Determine whether each pair of polygons is similar. If so, write a **similarity statement**.



Answer :

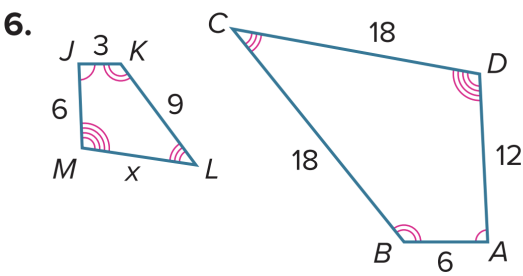
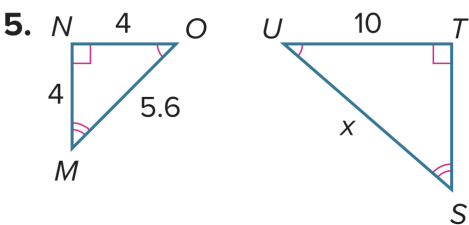
Picture 1

Picture 2

Picture 3

Picture 4

12) Each pair of polygons is similar. Find each missing side measure.



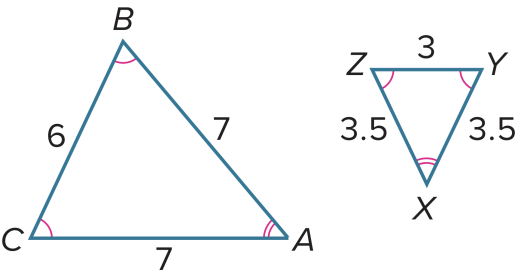
Answer :
Picture 5

Picture 6

13) Which of the following is true about $\triangle ABC$ and $\triangle XYZ$? Select all that apply.

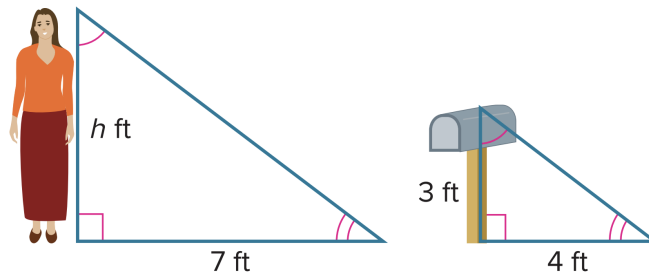
Answer :

- ☐ The triangles are similar.
- ☐ The triangles are not similar.
- ☐ The triangles are congruent.
- ☐ $\triangle ABC \sim \triangle XYZ$
- ☐ $\triangle ABC \cong \triangle XYZ$



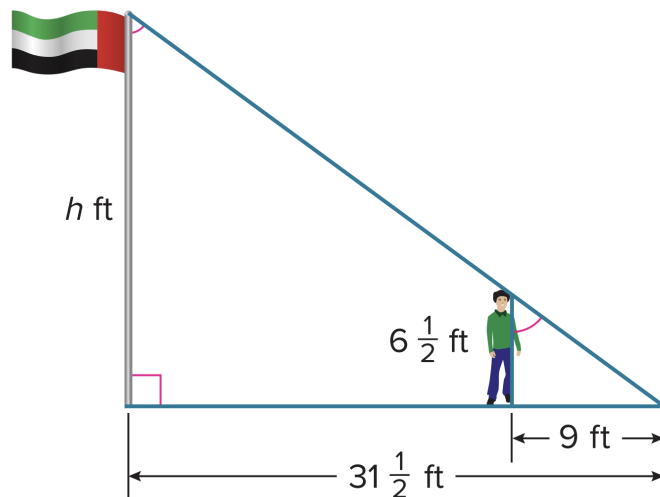
Part 4: indirect Measurement (page 527)

14) Becky casts a 7-foot shadow at the same time a nearby mailbox casts a 4-foot shadow. If the mailbox is 3 feet tall, how tall is Becky?



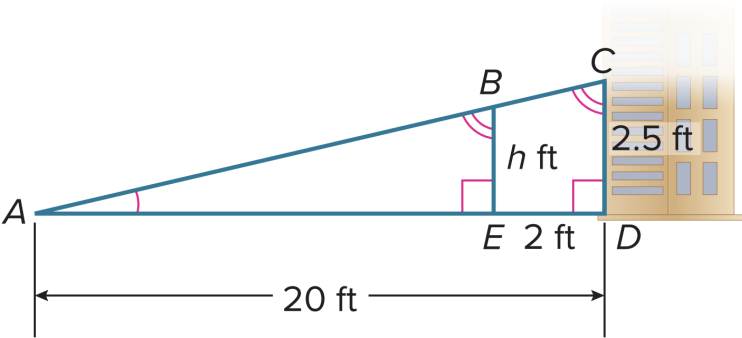
Answer :

15) At the same time a $6\frac{1}{2}$ foot tall teacher casts a 9-foot shadow, a nearby flagpole casts a $31\frac{1}{2}$ foot shadow. How tall is the flagpole?



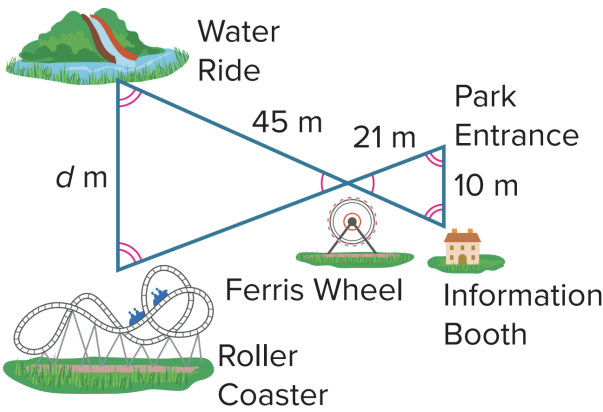
Answer :

16) In the figure, $\triangle ABE$ is similar to $\triangle ACD$. What is the height h of the ramp when it is 2 feet from the building?



Answer :

17) In the figure, the triangles are similar. What is the distance d from the water ride to the roller coaster? Round to the nearest tenth.



Answer :

18) If a 25-foot-tall house casts a 75-foot shadow at the same time that a streetlight casts a 60-foot shadow, how tall is the streetlight?

Answer :

19) A child and a statue cast the shadow lengths shown at the same time. Complete the table to find the height, in feet, of the statue.

Object	Height of Object (ft)	Shadow Length (ft)
Emma	3.5	5.25
Statue		57

Answer :

Volume Formulas.

Cylinder:

$$V = \pi r^2 h$$

$$h = \frac{V}{\pi r^2}$$

$$r = \sqrt{\frac{V}{\pi h}}$$

Cone:

$$V = \frac{1}{3} \pi r^2 h$$

$$h = \frac{3V}{\pi r^2}$$

$$r = \sqrt{\frac{3V}{\pi h}}$$

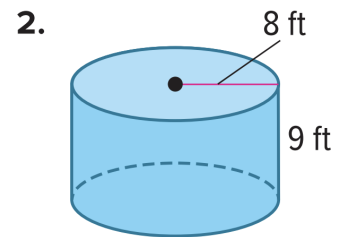
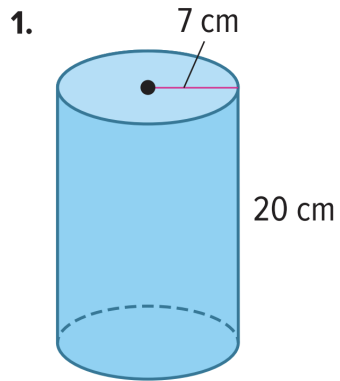
Sphere:

$$V = \frac{4}{3} \pi r^3$$

$$r = \sqrt[3]{\frac{3V}{4\pi}}$$

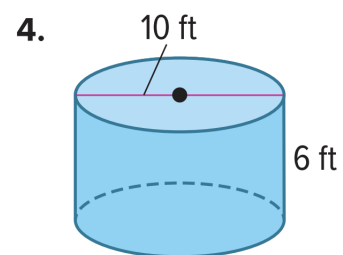
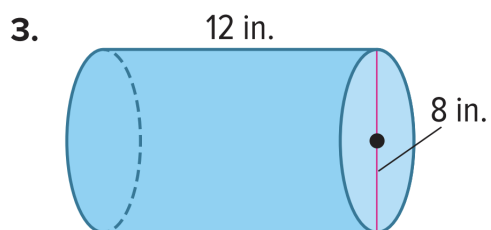
Part 5: Volume of Cylinders (page 541)

20) Find the volume of each cylinder. **Round to the nearest tenth.**



Answer :

21) Find the volume of each cylinder. **Express your answer in terms of π .**



Answer :

22) wooden toy block is in the shape of a cylinder. The toy block has a height of 4 inches and a diameter of 3 inches. How much does the toy block weigh if 1 cubic inch of wood weighs 0.55 ounce? **Round to the nearest tenth.**

Answer :

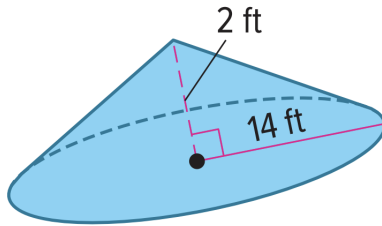
23) A large rainwater collection tub is shaped like a cylinder. The diameter is 28 inches and the height is 40 inches. If the tub is 75% filled, what is the volume of water in the tub? **Round to the nearest tenth.**

Answer :

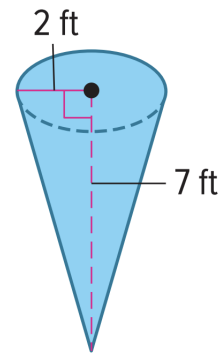
Part 6: Volume of Cones (page 549)

24) Find the volume of each cone. **Round to the nearest tenth.**

1.



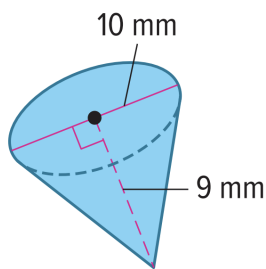
2.



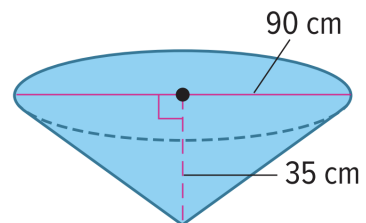
Answer :

25) Find the volume of each cone. **Express your answer in terms of π .**

3.



4.



Answer :

26) A funnel is in the shape of a cone. The radius is 2 inches and the height is 4.6 inches. What is the volume of the funnel? Round to the nearest tenth.

Answer :

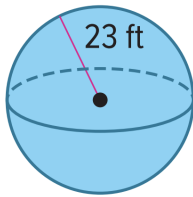
27) Marta bought a paperweight in the shape of a cone. The radius was 10 centimeters and the height 9 centimeters. Find the volume. Round to the nearest tenth.

Answer :

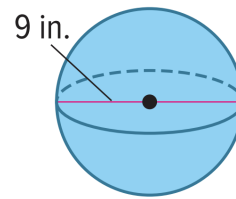
Part 7: Volume of Sphere (page 557)

28) Find the volume of each sphere. Round to the nearest tenth.

1.



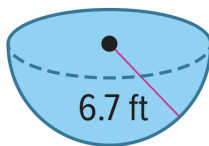
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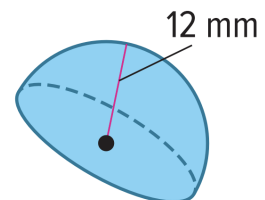
Answer :

29) Find the volume of each sphere. Express your answer in terms of π .

5.



6.



Answer :

30) A necklace has a single spherical pearl with a radius of 2.1 millimeters. What is the volume of the pearl? Round to the nearest tenth.

Answer :

31) The radius of a mini-basketball is 4 inches. A pump can inflate the ball at a rate of 6 cubic inches per second. How long will it take to inflate the ball? Round to the nearest tenth.

Answer :

Part 7: Find Missing Dimensions (page 565)

32) The volume of a cylinder is 72π cubic feet and the radius is 6 feet. What is the height of the cylinder?

Answer :

33) The volume of a cylinder is $5,070\pi$ cubic centimeters. The height of the cylinder is 30 centimeters. Find the radius.

Answer :

34) The volume of a cone is 196π cubic feet. Its radius is 7 feet. Find the height.

Answer :

35) The volume of a cone is 735π cubic millimeters and the height is 5 millimeters. What is the radius of the cone?

Answer :

36) Find the radius of a sphere with a volume of $26,244\pi$ cubic inches.

Answer :

37) The volume of a sphere is $4,500\pi$ cubic yards. What is the radius of the sphere?

Answer :

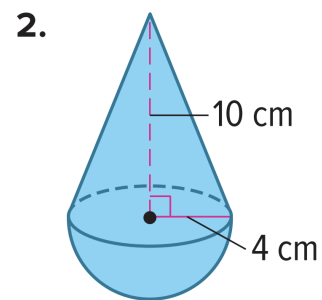
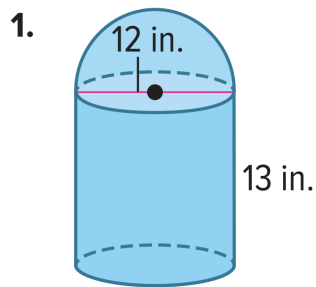
38) Melody has a mug with a diameter of 3.5 inches and a height of 4 inches. It is filled to the top with water. She wants to pour it into a different mug with a diameter of 3 inches. What is the minimum height the different mug must be so it does not overflow? **Round to the nearest tenth.**

Answer :

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

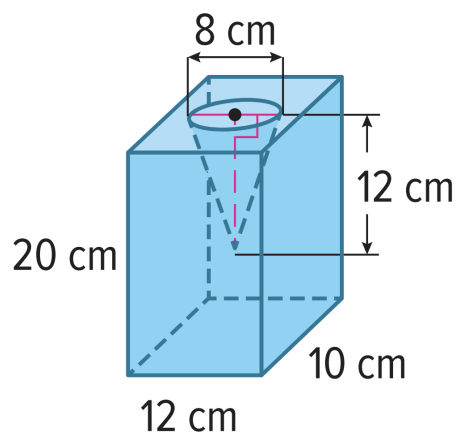
Part 8: Volume of Composite Solids (page 573)

39) Find the volume of each solid. Round to the nearest tenth.



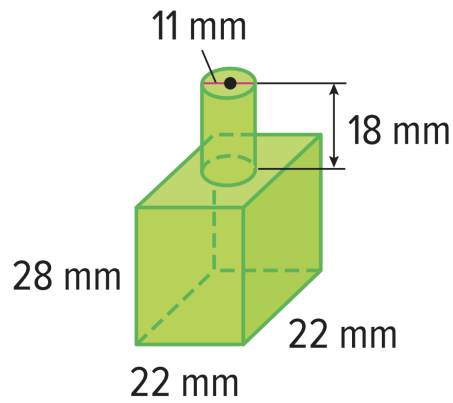
Answer :

40) Find the volume of the flower vase. Express your answer in terms of π .



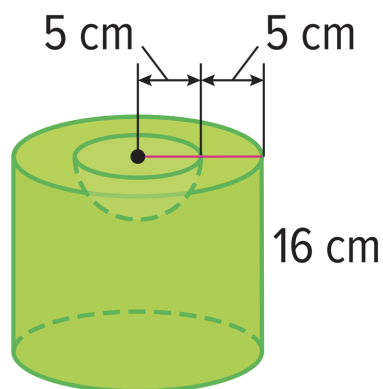
Answer :

41) Find the volume of the nail polish bottle. Round to the nearest tenth.



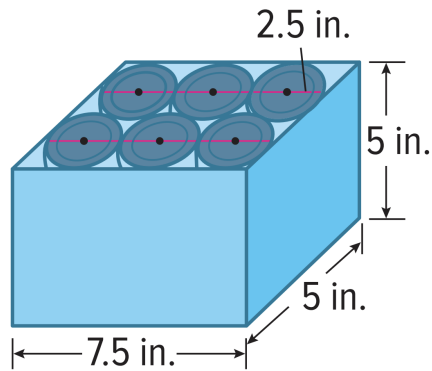
Answer :

42) Find the volume of the solid. Round to the nearest tenth. Express your answer in terms of π .



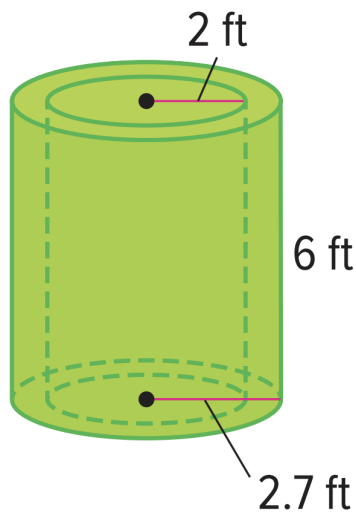
Answer :

43) box contains six identical cans, as shown. What percentage of the volume of the box is occupied by the cans? Round to the nearest tenth of a percent.



Answer :

44) What is the volume of the composite solid in cubic yards? Express your answer in terms of π .



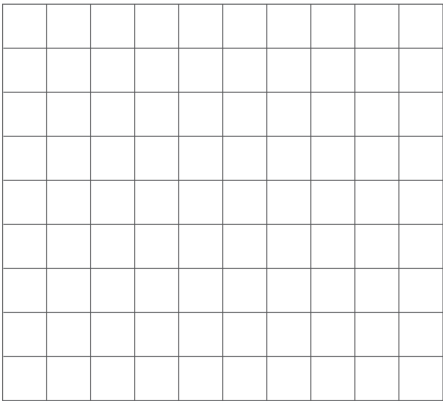
Answer :

Part 9: Scatter Plots (page 589)

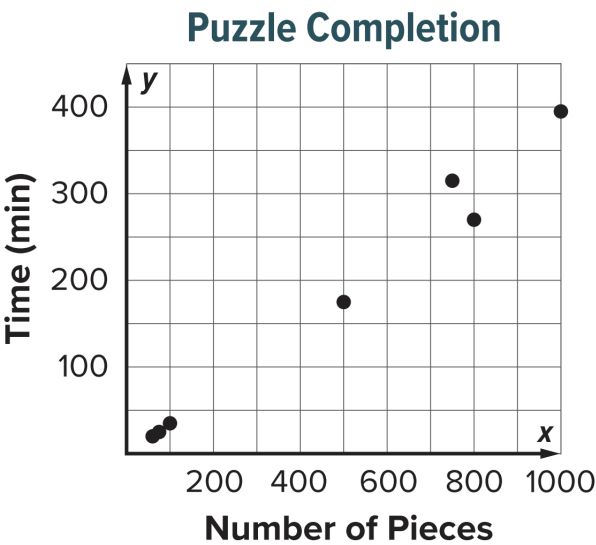
45) The table shows the average points scored per game by an NBA player in the first ten seasons of his career. **Construct a scatter plot of the data.**

Season	1	2	3	4	5
Average Points Per Game	28.2	22.7	37.1	35.0	32.5
Season	6	7	8	9	10
Average Points Per Game	33.6	31.5	30.1	32.6	26.9

Answer :

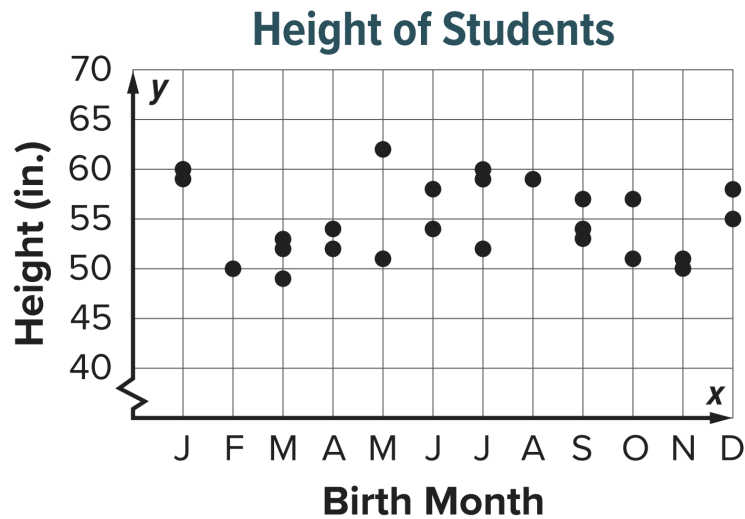


46) The scatter plot shows the relationship between the number of pieces in a jigsaw puzzle and the number of minutes that are recommended to complete the puzzle. **Interpret the scatter plot.**



Answer :

47) The scatter plot shows the relationship between the birth month of every student in Mari's class and their height. Which is the best interpretation of the data?

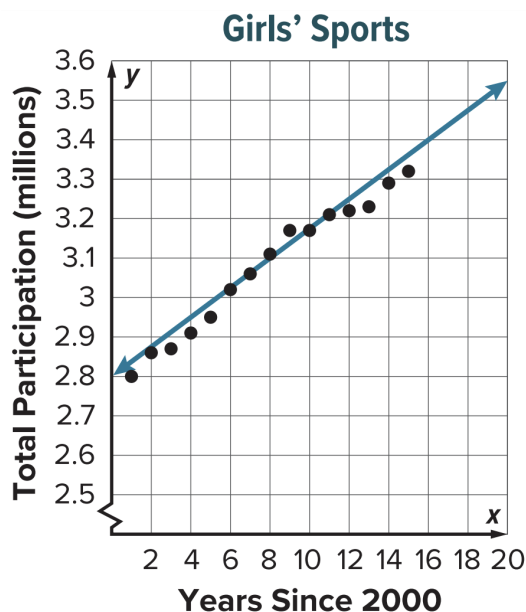


Answer :

- ☐ As the months progress, the heights of the students increase. There is a positive, linear association. There are no clusters or outliers.
- ☐ The height of a student does not depend on their birth month. The scatter plot shows no association.
- ☐ As the months progress, the heights of the students decrease. There is a negative, linear association. There are no clusters or outliers.
- ☐ As the months progress, the heights of the students are the same. There is a positive, linear association.

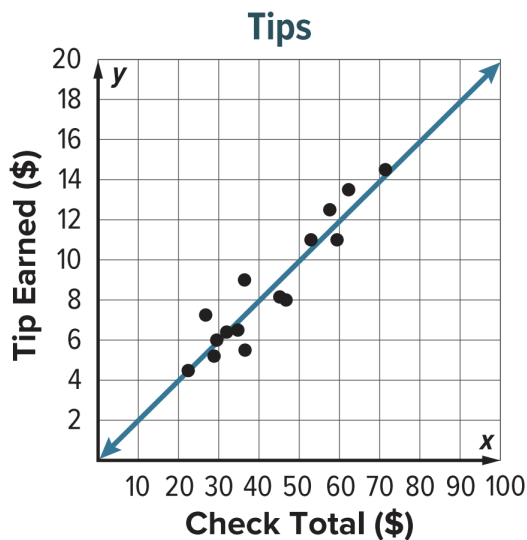
Part 10: Equations for Lines of Fit (page 607)

48) The scatter plot shows the number of girls that participated in high school sports. Write an equation in slope-intercept form for the line of fit that is drawn. Then interpret the slope and y-intercept.



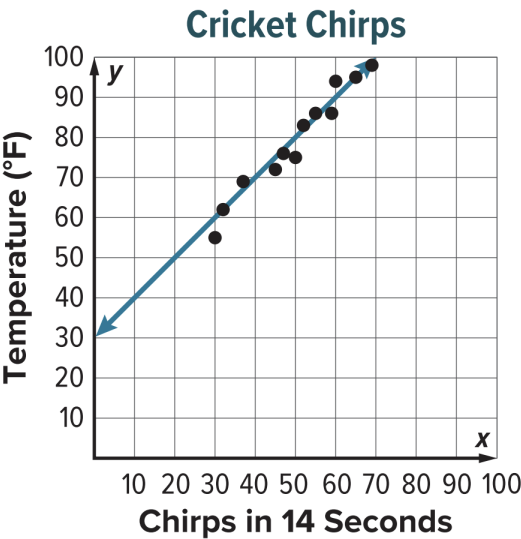
Answer :

49) The scatter plot shows the tips different restaurant servers earned one night. Write an equation in slope-intercept form for the line of fit that is drawn. Then interpret the slope and y-intercept.



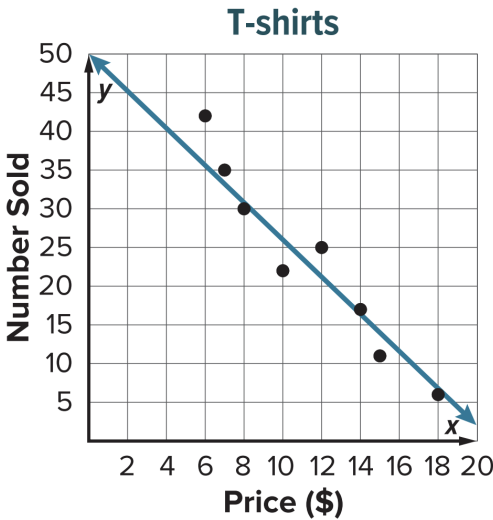
Answer:

50) The scatter plot shows the relationship between the number of times a cricket chirps and the current temperature. Write an equation for the line of fit. Then use it to make a conjecture about the temperature when there are 40 cricket chirps.



Answer :

51) The scatter plot shows the number of T-shirts sold at different prices in a souvenir shop. How many more T-shirts were sold for \$9 than \$16?



Answer:

Part 11: Two-Way Tables (page 617)

52) Omar surveyed students at his school. He found that 23 students are in the Chess Club, and 8 of those students are in the Math Club. There are 19 students that are in the Math Club. Ten students are in neither club. **Construct a two-way table summarizing the data.**

Answer:

	Math Club	No Math Club	Total
Chess Club			
No Chess Club			
Total			

53) The table shows the results of a survey that asked seventh and eighth grade students whether they buy or pack their lunch. **Find the relative frequencies. Round to the nearest hundredth.** Are seventh graders or eighth graders more likely to buy their lunch? Explain.

	Buy Lunch	Pack a Lunch	Total
7th Graders	30	45	75
8th Graders	51	25	76
Total	81	70	151

Answer:

54) The table shows the results of a survey about the number of bus riders at McGuffey Junior High. Find the relative frequencies. Round to the nearest hundredth. Are male students or female students more likely to not ride the bus? Explain.

	Male	Female	Total
Bus	110	84	194
No Bus	85	42	127
Total	195	126	321

Answer:

55) The two-way table shows the enrollment in language classes at Carson Middle School. Which of the following are valid conclusions about the data? Select all that apply.

	Enrolled in Spanish	Not Enrolled in Spanish	Total
Enrolled in French	30	65	95
Not Enrolled in French	20	5	25
Total	50	70	120

Answer :

- ☐ Of the students that are enrolled in French, fewer than half of them are also enrolled in Spanish.
- ☐ More than half of the students are not enrolled in French or Spanish.
- ☐ Students that are enrolled in Spanish are likely to be enrolled in French.
- ☐ More than half of the students are enrolled in French.
- ☐ Students are more likely to be enrolled in Spanish than not in Spanish.

Part B

Free Response Questions
الاسئلة المقالية

Part 1: Similarity and Transformations (page 511)

56) Jenna is creating a mural for her bedroom wall. She would like to copy a picture that is 2 inches by 2.5 inches. She uses a copy machine to **enlarge it by a scale factor of 4**. Then she projects it on her wall by a **scale factor of 12**. What are the dimensions of the mural? Are the enlarged pictures similar to the original?

Answer :

57) A graphic designer **enlarges** a rectangular image with a length of 3 inches and width of 5 inches by a **scale factor of 2**. Then he decides that the enlarged image is too large and reduces it by a **scale factor of 0.25**. Will the final image fit into a rectangular space that has an area of 3.5 square inches? Justify your response.

Answer :

58) An artist needs to reduce the size of a painting. The original dimensions of the painting are 12 inches by 20 inches. She reduces the painting by a **scale factor of $\frac{1}{4}$** . She then decides that the reduced image is too small and enlarges it by a **scale factor of 2**. Will the final image fit in a rectangular space that has an area of 55 square inches? Justify your response.

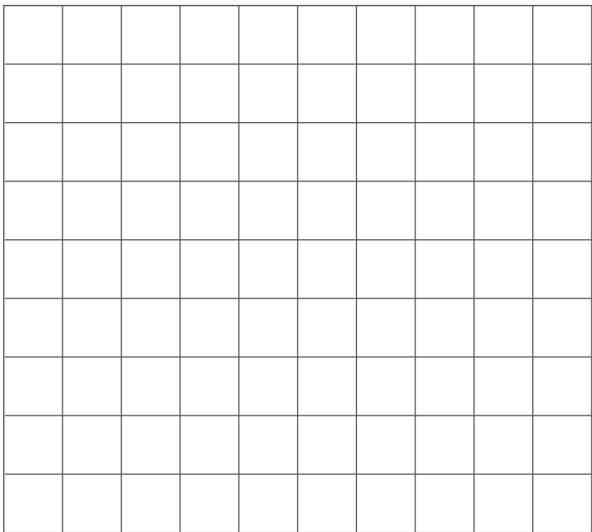
Answer :

Part 2: Draw Lines of Fit(page 597,598)

59) Construct a scatter plot. Then draw and assess a line that seems to represent the data.

Average MPG	22	25	31	28	16	26
GHG Rating	5	6	7	7	3	6
Average MPG	35	41	24	32	30	23
GHG Rating	8	9	5	8	7	5

Answer:



60) The scatter plot shows the height and shoe size of the players on the boys’ basketball team. Use the line of fit to make a conjecture about the shoe size of a boy on the team that is 59 inches tall.

