

Student Name:

Date:

Academic Year	2025-2026	Term	1	Subject	Math\Reveal
Grade\stream	11\General	Number Of MCQ	20	Marks Of MCQ	3
Maximum over Grade	100	Number Of FRQ	6	Marks Of FRQ	(6-11)
Exam Duration	150 min	Mode of Implementation	SwiftAssess & Paper-Based		
Calculator	Allowed	الألة الحاسبة	مسموحة		

Question السؤال		Lesson الدرس	Example/Exer cise مثال/تمرين	Page الصفحة
MCQ - الأسئلة الموضوعية	1	Find the scale factor of a dilation	10-18	120
	2	Use proportions to identify similar polygons	7-10	128
	3	Solve problems using the properties of similar polygons	11-14	128
	4	Use similar triangles to solve problems	9-12	134
	5	Use proportional parts with parallel lines	Example 5	144
	6	Recognize and use proportional relationships of corresponding angle bisectors, altitudes, and medians of similar triangles	8-9	153
	7	Find the geometric mean between two numbers	1-6	165
	8	Solve problems involving relationships between parts of a right triangle and the altitude to its hypotenuse	(11-14)	165
	9	Use the Pythagorean Theorem	(1-12)	171
	10	Use the Converse of the Pythagorean Theorem	(20-22)	172
	11	Use the Converse of the Pythagorean Theorem	(20-22)	172
	12	Find the distance between two points on the coordinate plane	(13-18)	177
	13	Find values of trigonometric ratios	(19-21)	192
	14	Use the Law of Sines to solve triangles	(1-6)	207
	15	Use the Law of Cosines to solve triangles	(9-14)	215
	16	Use the Fundamental Counting Principle to count outcomes	Example 4	368
	17	Represent sample spaces	Example 1	365
	18	Find the intersection, union, and difference among sets	Example 1	373
	19	Find probabilities of dependent and independent events and solve related problems	Example 1	398
	20	Find the probability of mutually and non-mutually exclusive events and solve related problems	Example 2	406
FRQ - الأسئلة المقالية	21	Visualize, describe, and solve problems using the perimeters of similar polygons.	(11-14)	128
	22	Solve problems and prove theorems by using triangle proportionality	(1-6)	145
	23	Use trigonometric ratios to find side lengths and angle measures of right triangles	(30-32)	193
	24	Use trigonometric ratios to find side lengths and angle measures of right triangles	Example 2	196
	25	Find the intersection, union, and difference among sets	Example 2+3	374+375
	26	Find probabilities of dependent and independent events and solve related problems	Example 3	400

"Attached are the Mathematics structure questions – Please ensure the correctness of the questions and page numbers from the structure guide in the LMS and the student textbook – I wish you all the best and success."

مرفق أسئلة هيكل الرياضيات - الرجاء التأكد من صحة الأسئلة وأرقام الصفحات من الهيكل في بوابة التعلم الذكي والكتاب المدرسي - أتمنى لكم التوفيق والنجاح.

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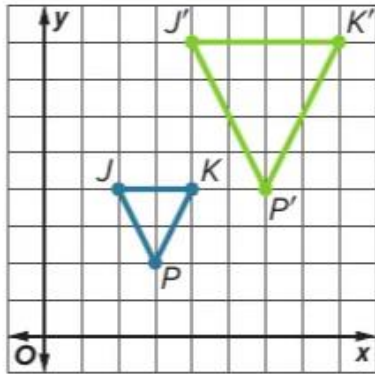
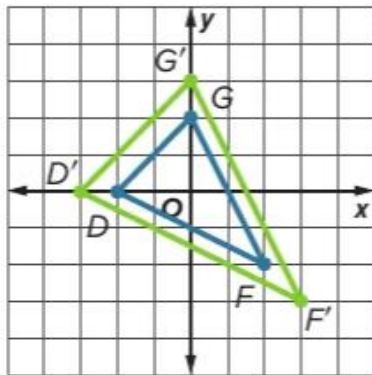
الأسئلة الموضوعية - MCQ

1	Find the scale factor of a dilation	10-18	120
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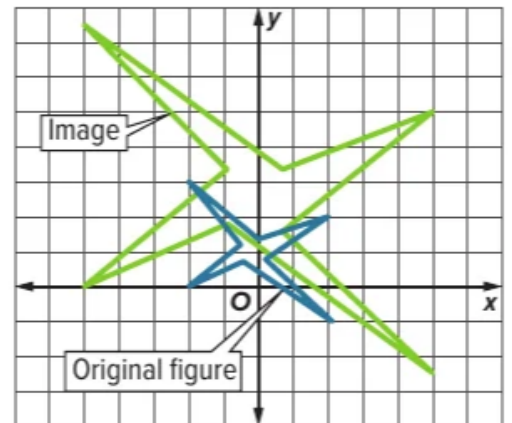
Lesson 3-1

Dilations

Find the scale factor of the dilation.

10. $\triangle J'K'P'$ is the image of $\triangle JKP$.11. $\triangle D'F'G'$ is the image of $\triangle DFG$.

12. Tyrone drew a logo and a dilation of the same logo on the coordinate plane. What is the scale factor of the dilation?



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Graph the image of each polygon with the given vertices after a dilation centered at the origin with the given scale factor.

13. $F(-10, 4), G(-4, 4), H(-4, -8), k = 0.25$

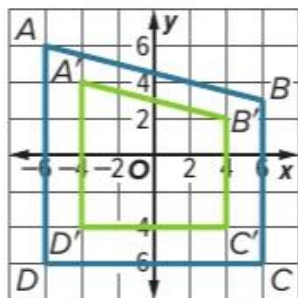
14. $X(2, -1), Y(-6, 4), Z(-2, -5), k = \frac{5}{4}$

15. $M(4, 6), N(-6, 2), P(0, -8), k = \frac{3}{4}$

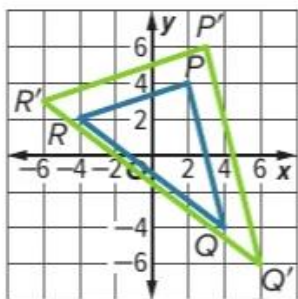
16. $R(-2, 6), S(0, -1), T(-5, 3), k = 1.5$

Find the scale factor of the dilation.

17. $A'B'C'D'$ is the image of $ABCD$.



18. $\triangle P'Q'R'$ is the image of $\triangle PQR$.



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الأسئلة الموضوعية - MCQ

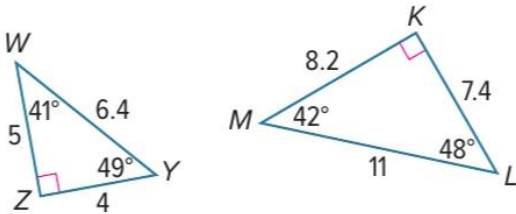
2	Use proportions to identify similar polygons	7-10	128
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Lesson 3-2

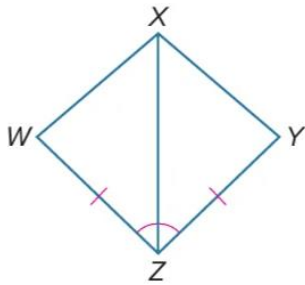
Similar Polygons

Determine whether each pair of figures is similar. If so, find the scale factor. Explain your reasoning.

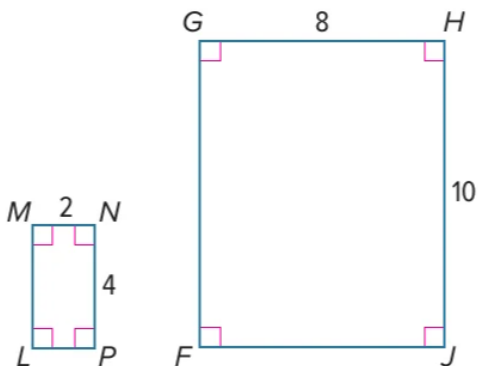
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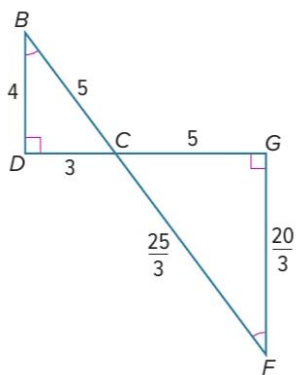
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الأسئلة الموضوعية - MCQ

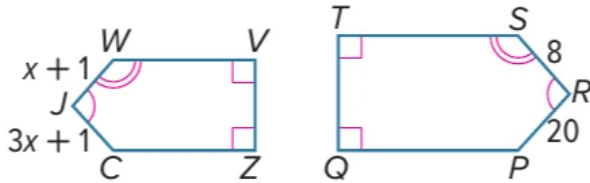
3	Solve problems using the properties of similar polygons	11-14	128
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Lesson 3-2

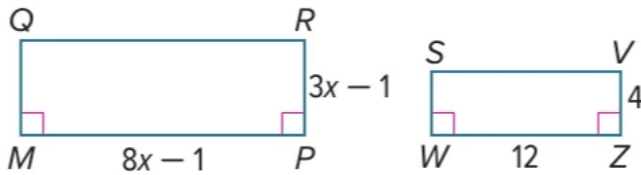
Similar Polygons

Each pair of polygons is similar. Find the value of x .

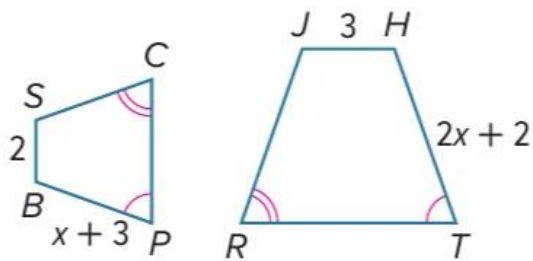
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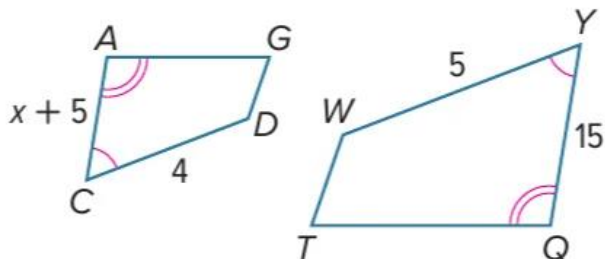
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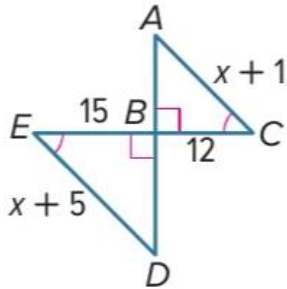
الأسئلة الموضوعية - MCQ

4	Use similar triangles to solve problems	9-12	134
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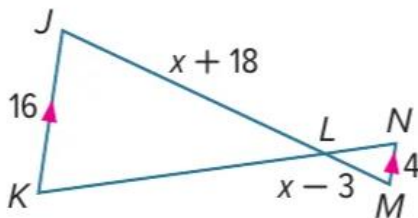
Lesson 3-3 Similar Triangles: AA Similarity

Identify the similar triangles. Then find each measure.

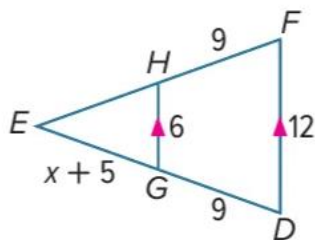
9. AC



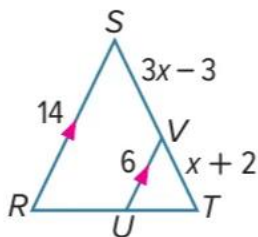
10. JL



11. EH



12. VT



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الأسئلة الموضوعية - MCQ

5

Use proportional parts with parallel lines

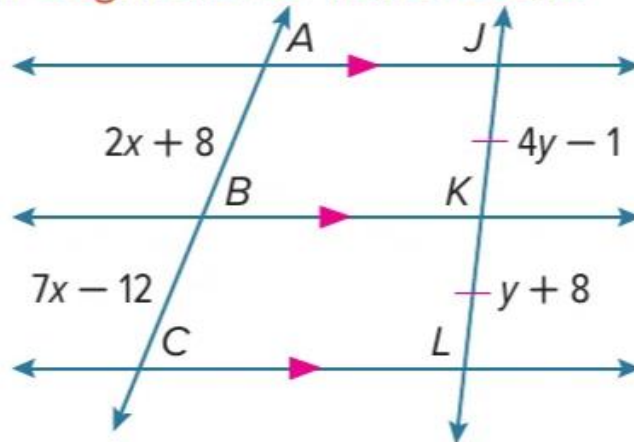
Example 5

144

Lesson 3-5 Triangle Proportionality

Example 5 Use Congruent Segments of Transversals**Find the values of x and y .**

Because $\overrightarrow{AJ} \parallel \overrightarrow{BK} \parallel \overrightarrow{CL}$ and $\overline{JK} \cong \overline{KL}$, then $\overline{AB} \cong \overline{BC}$.

**Find the value of x .**

$$AB = BC$$

$$2x + 8 = 7x - 12$$

$$8 = 5x - 12$$

$$20 = 5x$$

$$4 = x$$

Find the value of y .

$$JK = KL$$

$$4y - 1 = y + 8$$

$$3y - 1 = 8$$

$$3y = 9$$

$$y = 3$$

Definition of congruence

Substitution

Subtract $2x$ from each side.

Add 12 to each side.

Divide each side by 5.

Definition of congruence

Substitution

Subtract y from each side.

Add 1 to each side.

Divide each side by 3.

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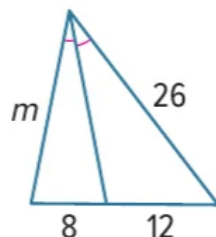
الأسئلة الموضوعية - MCQ			
6	Recognize and use proportional relationships of corresponding angle bisectors, altitudes, and medians of similar triangles	8-9	153

Lesson 3-6

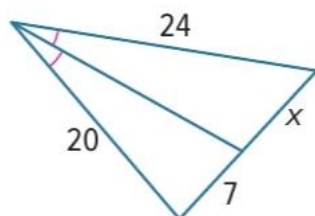
Parts of Similar Triangles

Find the value of each variable to the nearest tenth.

8.



9.



الأسئلة الموضوعية - MCQ			
7	Find the geometric mean between two numbers	1-6	165

Lesson 4-1

Geometric Mean

Find the geometric mean between each pair of numbers.

1. 4 and 6

2. $\frac{1}{2}$ and 2

3. 4 and 25

4. 12 and 20

5. 17 and 3

6. 3 and 24

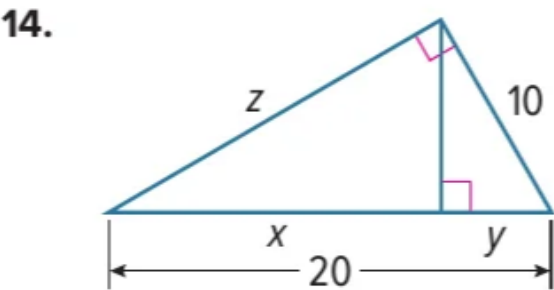
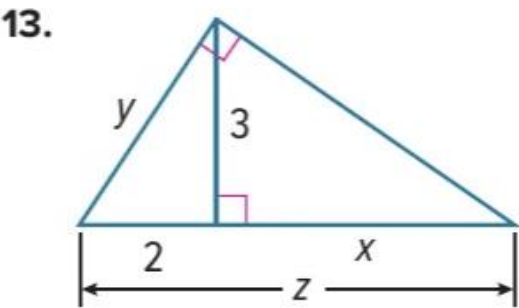
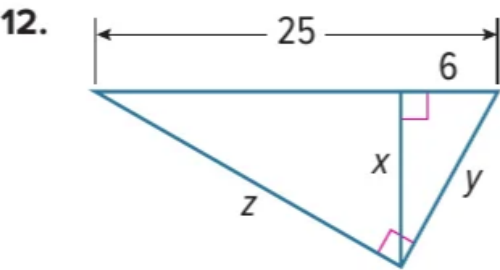
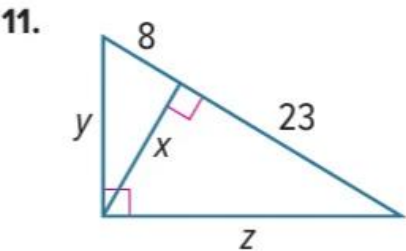
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الأسئلة الموضوعية - MCQ			
8	Solve problems involving relationships between parts of a right triangle and the altitude to its hypotenuse	(11-14)	165

Lesson 4-1 Geometric Mean

Find the values of x , y , and z .



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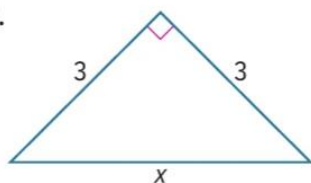
الأسئلة الموضوعية - MCQ

9	Use the Pythagorean Theorem	(1-12)	171
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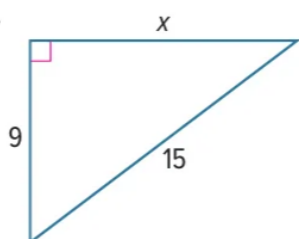
Lesson 4-2 Pythagorean Theorem and Its Converse

Find the value of x .

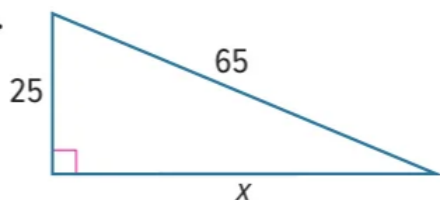
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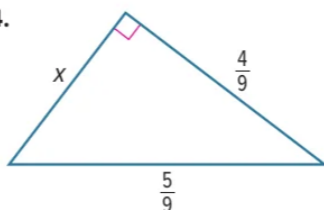
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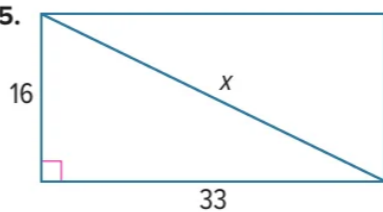
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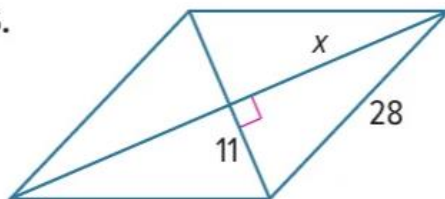
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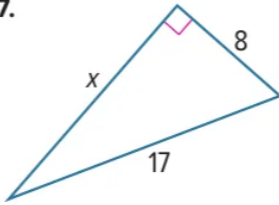


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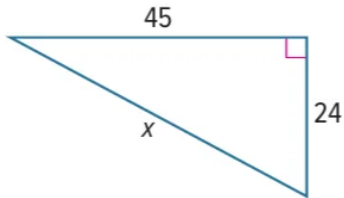
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Use a Pythagorean Triple to find the value of x .

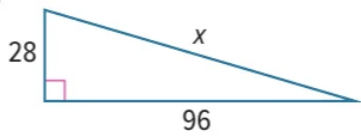
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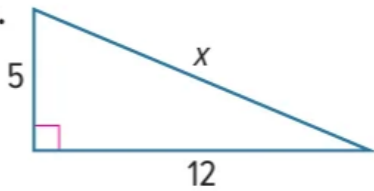
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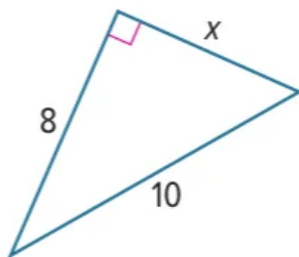
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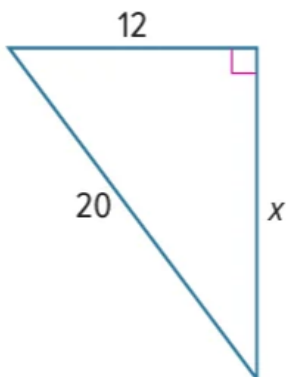
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الأسئلة الموضوعية - MCQ			
10	Use the Converse of the Pythagorean Theorem	(20-22)	172

Lesson 4-2 Pythagorean Theorem and Its Converse

Determine whether each set of measures can be the measures of the sides of a triangle. If so, classify the triangle as *acute*, *obtuse*, or *right*. Justify your answer.

20. $\sqrt{5}$, $\sqrt{12}$, $\sqrt{13}$

21. 2, $\sqrt{8}$, $\sqrt{12}$

22. 9, 40, 41

الأسئلة الموضوعية - MCQ			
11	Use the Converse of the Pythagorean Theorem	(20-22)	172

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الأسئلة الموضوعية - MCQ			
12	Find the distance between two points on the coordinate plane	(13-18)	177

Lesson 4-3

Coordinates in Space

Determine the coordinates of the midpoint M of the segment joining each pair of points.

13. $K(-2, -4, -4)$ and $L(4, 2, 0)$

14. $W(-1, -3, -6)$ and $Z(-1, 5, 10)$

15. $R(3, 3, 4)$ and $V(5, 4, 13)$

16. $A(4, 6, -8)$ and $B(0, 0, 0)$

17. $C(8, 7, 11)$ and $D(2, 1, 8)$

18. $T(-1, -7, 9)$ and $U(5, -1, -6)$

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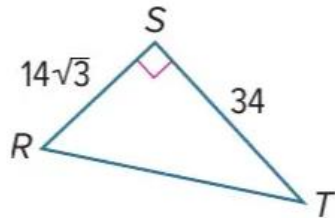
الأسئلة الموضوعية - MCQ

13	Find values of trigonometric ratios	(19-21)	192
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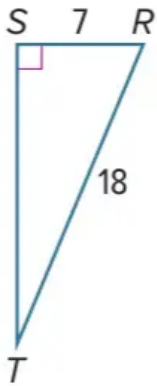
Lesson 4-5 Trigonometry

Use a calculator to find $m\angle T$ to the nearest tenth.

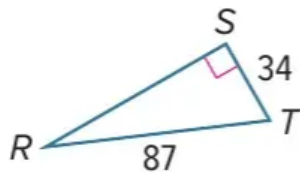
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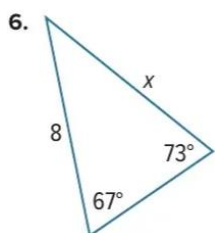
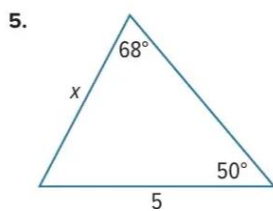
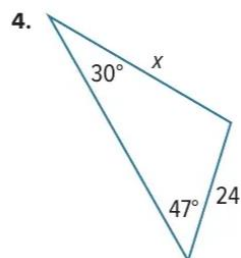
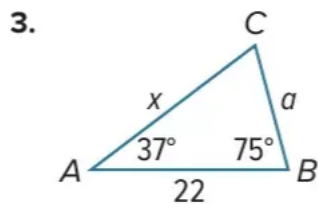
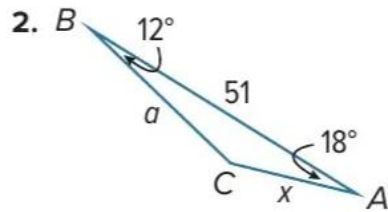
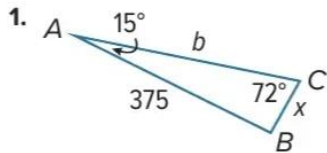
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الأسئلة الموضوعية - MCQ

14	Use the Law of Sines to solve triangles	(1-6)	207
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Lesson 4-7

The Law of Sines

Find the value of x to the nearest tenth.

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الأسئلة الموضوعية - MCQ

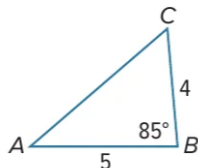
15	Use the Law of Cosines to solve triangles	(9-14)	215
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Lesson 4-8

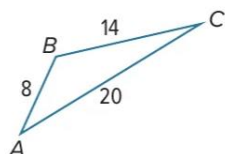
The Law of Cosines

REASONING Solve each triangle. Round side lengths to the nearest tenth and angle measures to the nearest degree.

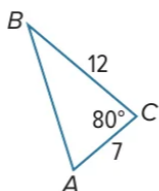
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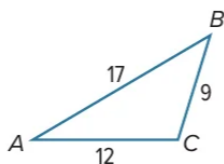
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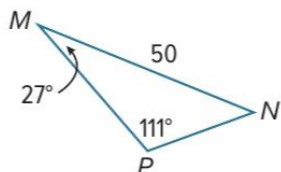
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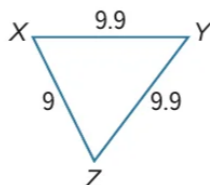
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الأسئلة الموضوعية - MCQ

16 Use the Fundamental Counting Principle to count outcomes

Example 4

368

Lesson 7-1

Sample Spaces

 Example 4 Use the Fundamental Counting Principle

COLLEGE Santiago lists the number of sections available for the courses he will take in his first semester at college. How many different schedules could Santiago create for this semester?

Course	Sections Offered
Art History	6
French	5
Mathematics	9
Art	4
English	6

You can estimate the total number of different schedules he can make. There are about 10 sections of the mathematics course offered. For each of the other four courses, there are about 5 sections offered. Multiply to estimate that Santiago can create about 6250 schedules.

Find the number of possible outcomes by using the Fundamental Counting Principle to complete the equation.

Art					Possible					
History	French	Mathematics	Art	English	Outcomes					
6	×	5	×	9	×	4	×	6	=	6480

Santiago could create 6480 different schedules. Because 6480 is close to the estimate of 6250, the answer is reasonable.

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الأسئلة الموضوعية - MCQ		
17	Represent sample spaces	Example 1
		365

Lesson 7-1

Sample Spaces

Example 1 Define a Sample Space

A fair die is tossed once.

a. What is the sample space of the experiment?

The sample space S includes all possible outcomes of rolling a die.

$$S = \{1, 2, 3, 4, 5, 6\}$$

b. What is the sample space for the event of rolling a prime number? Write the outcomes to complete the sample space.

The sample space S (prime number on a die) includes all prime numbers less than 6.

$$S(\text{prime number on a die}) = \{2, 3, 5\}$$

الأسئلة الموضوعية - MCQ		
18	Find the intersection, union, and difference among sets	Example 1
		373

Lesson 7-2

Probability and Counting

Example 1 Find Intersections

A fair die is rolled once. Let A be the event of rolling an odd number, and let B be the event of rolling a number greater than 3. Find $A \cap B$.

The possible outcomes for event A are all the numbers on a die that are odd, or $\{1, 3, 5\}$.

The possible outcomes for event B are all the numbers on a die that are greater than 3, or $\{4, 5, 6\}$.

$A \cap B$ contains all of the outcomes that are in both sample space A and B .

$$A \cap B = \{5\}$$

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الأسئلة الموضوعية - MCQ

19	Find probabilities of dependent and independent events and solve related problems	Example 1	398
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Lesson 7-5**Probability and the Multiplication Rule****Example 1** Probability of Independent Events

GAMING Ana is a member of a gaming Web site that randomly pairs users together to solve puzzles. Of the 50 other players currently online, Ana is friends with 10 of them. Suppose Ana is paired with a player for a game. Not liking the outcome, she disconnects and is paired with another player.

- a. What is the probability that neither player that Ana is paired with is a friend of hers?

These events are independent because the set of possible matches is reset to 50 once Ana disconnects. Let F represent a player who is Ana's friend and NF represent a player who is not Ana's friend.

Complete the equation to determine the probability of independent events.

User 1 User 2

$$\begin{aligned}
 P(NF \text{ and } NF) &= P(NF) \cdot P(NF) \\
 &= \frac{40}{50} \cdot \frac{40}{50} & P(NF) &= \frac{40}{50} \\
 &= \frac{1600}{2500} \text{ or } \frac{16}{25} & \text{Simplify.} &
 \end{aligned}$$

So, the probability that neither of the two players is Ana's friend is $\frac{16}{25}$ or 64%.

- b. What assumption do you have to make in order to solve this problem?

We assume that the same 50 players remain in the set for both selections. If the number of available players changes, or the number of available players who are friends with Ana changes, the probability will change.

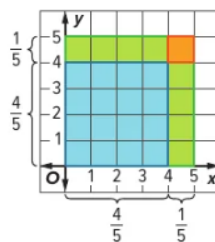
Alternate Method

You can also use an area model to calculate the probability that neither player is a friend of Ana's.

The probability that a player is not a friend of Ana's is $\frac{40}{50}$ or $\frac{4}{5}$.

The blue region represents the probability of two sequential players not being friends with Ana. The area of the blue region is $\frac{16}{25}$ of the entire shaded region.

The orange region represents the probability of two sequential players being friends with Ana. The area of the orange region is $\frac{1}{25}$ of the entire shaded region.



Student Name:

Date:

الأسئلة الموضوعية - MCQ

20

Find the probability of mutually and non-mutually exclusive events and solve related problems

Example 2

406

Lesson 7-6

Probability and the Addition Rule

 Example 2 Probability of Mutually Exclusive Events

SOCIAL MEDIA Daniel organizes all of his social media contacts into three groups. If the program sends Daniel an update from a randomly chosen contact, what is the probability that the contact is either a close friend or acquaintance?



These are mutually exclusive events, because the contacts selected cannot be a close friend and an acquaintance.

Let event F represent selecting a close friend. Let event A represent selecting an acquaintance. There are a total of $10 + 68 + 24$ or 102 contacts.

Because the events are mutually exclusive, you know that

$$P(F \text{ or } A) = P(F) + P(A).$$

$$P(F \text{ or } A) = P(F) + P(A)$$

$$= \frac{68}{102} + \frac{24}{102}$$

$$= \frac{92}{102} \text{ or } \frac{46}{51}$$

Probability of mutually exclusive events

$$P(F) = \frac{68}{102} \text{ and } P(A) = \frac{24}{102}$$

Add.

So the probability that the update is from a close friend or acquaintance is $\frac{46}{51}$ or about 90%.

Student Name:

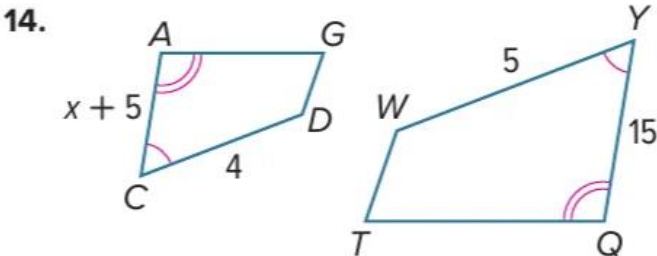
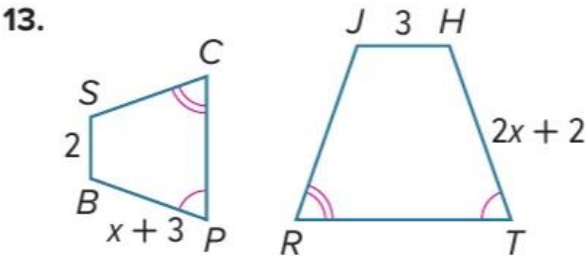
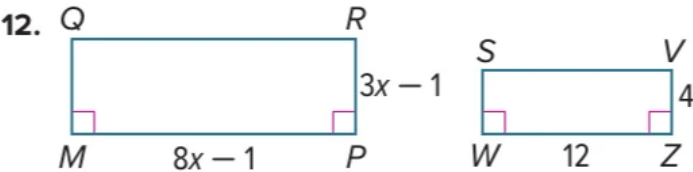
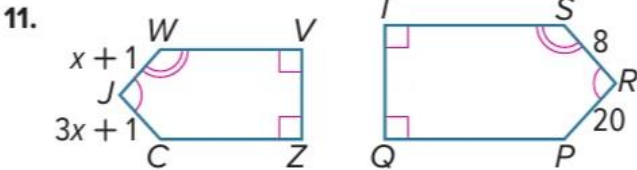
Date:

الأسئلة المقالية - FRQ			
21	Visualize, describe, and solve problems using the perimeters of similar polygons.	(11-14)	128

Lesson 3-2

Similar Polygons

Each pair of polygons is similar. Find the value of x



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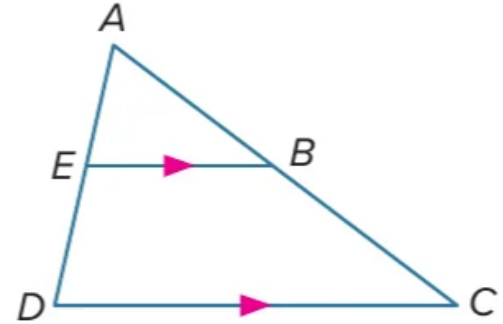
Date:

الأسئلة المقالية - FRQ			
22	Solve problems and prove theorems by using triangle proportionality	(1-6)	145

Lesson 3-5 Triangle Proportionality

Use the figure at the right.

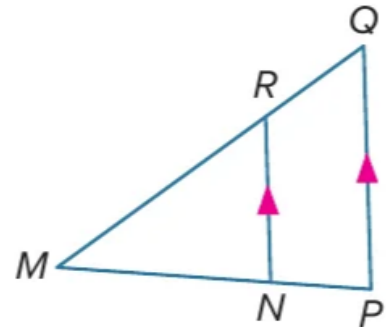
1. If $AB = 6$, $BC = 4$, and $AE = 9$, find ED .



2. If $AB = 12$, $AC = 16$, and $ED = 5$, find AE .

Determine whether $\overline{NR} \parallel \overline{PQ}$. Justify your answer.

3. $PM = 18$, $PN = 6$, $QM = 24$, and $RM = 16$



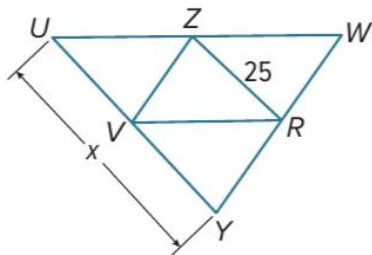
4. $QM = 31$, $RM = 21$, and $PM = 4PN$

Student Name:

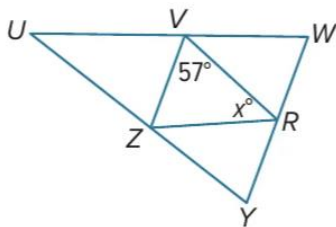
Date:

$\overline{VR}$, $\overline{VZ}$, and $\overline{ZR}$ are midsegments of $\triangle UWY$. Find the value of x .

5.



6.

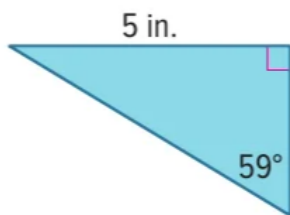


الأسئلة المقالية - FRQ			
23	Use trigonometric ratios to find side lengths and angle measures of right triangles	(30-32)	193

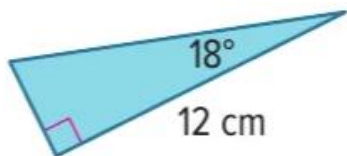
Lesson 4-5 Trigonometry

REASONING Find the perimeter and area of each triangle. Round to the nearest hundredth.

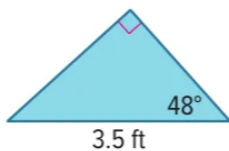
30.



31.



32.



Student Name:

Date:

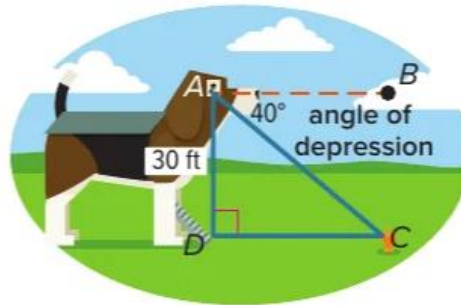
الأسئلة المقالية - FRQ			
24	Use trigonometric ratios to find side lengths and angle measures of right triangles	Example 2	196

Lesson 4-6

Applying Trigonometry

 Example 2 Angle of Depression

SIGHTSEEING Cottonwood, Idaho's Dog Bark Park Inn is a popular tourist attraction featuring a hotel in the shape of a 30-foot wood-carved beagle. Pedro looks out the window 30 feet from the ground and spots a fire hydrant on the ground at an estimated angle of depression of 40° . What is the horizontal distance from Pedro to the hydrant to the nearest foot?



Because $\overline{AB}$ and $\overline{DC}$ are parallel, $m\angle BAC = m\angle ACD$ by the Alternate Interior Angles Theorem.

Let x represent the horizontal distance from the base of the hotel to the hydrant.

$$\tan C = \frac{AD}{DC}$$

$$\tan = \frac{\text{opposite}}{\text{adjacent}}$$

$$\tan 40^\circ = \frac{30}{x}$$

$$C = 40^\circ, AD = 30, \text{ and } DC = x$$

$$x \tan 40^\circ = 30$$

Multiply each side by x .

$$x = \frac{30}{\tan 40^\circ}$$

Divide each side by $\tan 40^\circ$.

$$x \approx 35.8$$

Use a calculator.

The horizontal distance from Pedro to the hydrant is about 36 feet.

Student Name:

Date:

الأسئلة المقالية - FRQ			
25	Find the intersection, union, and difference among sets	Example 2+3	374+375

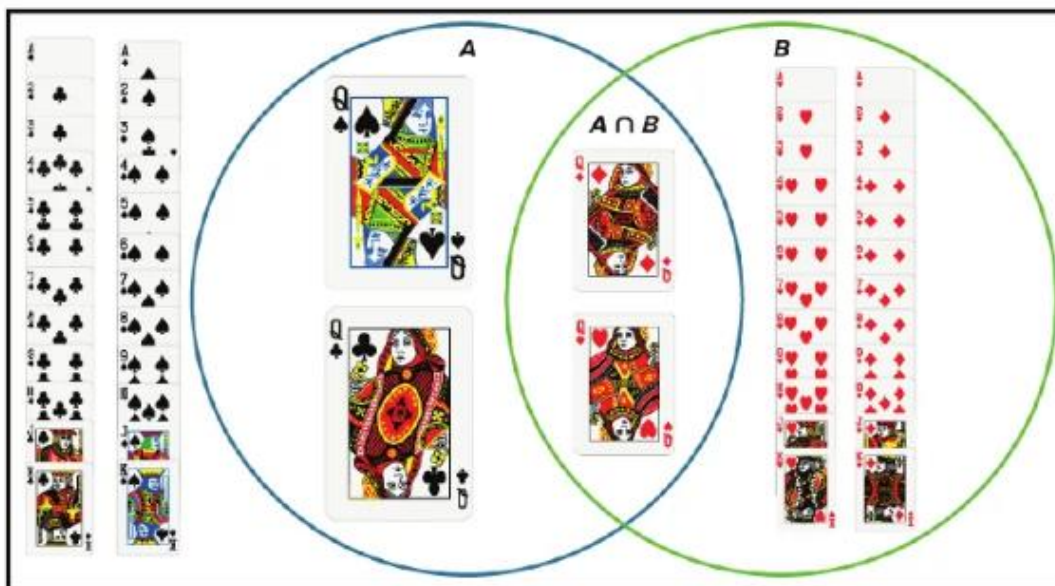
Lesson 7-2

Probability and Counting

Example 2 Find Probability of Intersections

PLAYING CARDS A card is selected from a standard deck of cards.
What is the probability that the card is a queen and is red?

Let A be the event of choosing a queen, and let B be the event of choosing a red card. The total number of outcomes is the total number of cards in a deck, or 52.



From the diagram, there are only 2 red cards that are also queens.

$$P(A \cap B) = \frac{\text{number of outcomes in } A \text{ and } B}{\text{total number of possible outcomes}} \quad \text{Probability Rule for Intersections}$$

$$= \frac{2}{52}$$

Substitution

$$= \frac{1}{26}$$

Simplify.

The probability that the card is both a queen and is red is $\frac{1}{26}$, or about 3.8%.

Student Name:

Date:

Example 3 Find Unions

A fair die is rolled once. Let A be the event of rolling a number less than 5, and let B be the event of rolling a multiple of 2.

Find $A \cup B$.

The possible outcomes for event A are all the numbers on a die that are less than 5, or $\{1, 2, 3, 4\}$.

The possible outcomes for event B are all the numbers on a die that are multiples of 2, or $\{2, 4, 6\}$.

$A \cup B$ contains all of the outcomes that are in either sample space(s) A or B .

$$A \cup B = \{1, 2, 3, 4, 6\}$$

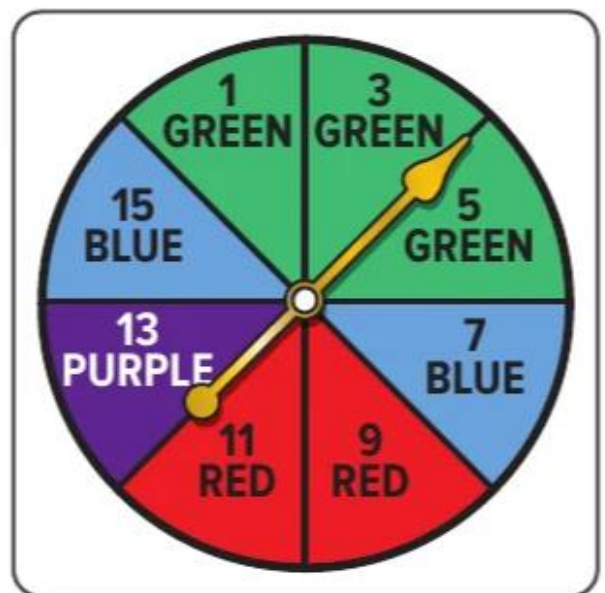
Check

Let A be the event of the spinner landing on a blue section, and let B be the event of the spinner landing on a section with a number divisible by 3. What are the possible outcomes of each event?

$$A = \{7, \underline{\quad?}\}$$

$$B = \{3, \underline{\quad?}, 15\}$$

$$A \cup B = \{3, 7, 9, \underline{\quad?}\}$$



Student Name:

Date:

الأسئلة المقالية - FRQ			
26	Find probabilities of dependent and independent events and solve related problems	Example 3	400

Lesson 7-5**Probability and the Multiplication Rule**
 Example 3 Probability of Dependent Events

FOOD The pizza that José and Tessa are eating has 10 slices and is half cheese, half mushroom. Tessa spins the pizza around and randomly selects a slice of mushroom pizza. If José spins the pizza and selects a slice after that, what is the probability that both he and Tessa select a slice of mushroom pizza?

These events are dependent because Tessa does not replace the slice she selected. Let M represent a slice of mushroom pizza and C represent a slice of cheese pizza.

$$P(M \text{ and } M) = P(M) \cdot P(M|C)$$

$= \frac{5}{10} \cdot \frac{4}{9} \text{ or } \frac{2}{9}$

Probability of dependent events
After the first slice of mushroom pizza is selected, 9 total pieces remain, and 4 of those slices have mushrooms.

So, the probability that both friends randomly select slices with mushrooms is $\frac{2}{9}$ or about 22%.

Check

SCHOOL On a math test, 5 out of 20 students got all the questions correct. If three students are chosen at random without replacement, what is the probability that all three got all the questions correct on the test?