Example Items

Geometry
Pre-AP

Geometry Pre-AP Example Items are a **representative set** of items for the ACP. Teachers may use this set of items along with the test blueprint as guides to prepare students for the ACP. On the last page, the correct answer, content SE and SE justification are listed for each item.

The specific part of an SE that an Example Item measures is NOT necessarily the only part of the SE that is assessed on the ACP. None of these Example Items will appear on the ACP.

Teachers may provide feedback regarding Example Items.

(1) Download the Example Feedback Form and email it. The form is located on the homepage of Assessment.dallasisd.org.

OR

(2) To submit directly, click "Example Feedback" **after** you login to the Assessment website.

First Semester
2017–2018
Code #: 1201

ACP Formulas
Geometry/Geometry PAP
2017–2018

Perimeter and Circumference	
Square: $P = 4s$	Rectangle: $P = 2\ell + 2w$
Circle: $C = 2\pi r$ $C = \pi d$	Arc Length: $\ell = \frac{x}{360^\circ} \cdot 2\pi r$
Area	
Square: $A = s^2$	Triangle: $A = \frac{1}{2}bh$
Rectangle: $A = \ell w$ $A = bh$	Regular Polygon: $A = \frac{1}{2}aP$
Parallelogram: $A = bh$	Circle: $A = \pi r^2$
Rhombus: $A = \frac{1}{2}d_1d_2$ $A = bh$	Sector of a Circle: $A = \frac{x}{360^\circ} \cdot \pi r^2$
Trapezoid: $A = \frac{1}{2}(b_1 + b_2)h$	
Lateral Surface Area	
Prism: $L = Ph$	Pyramid: $L = \frac{1}{2}P\ell$
Cylinder: $L = 2\pi rh$	Cone: $L = \pi r\ell$
Total Surface Area	
Prism: $S = Ph + 2B$	Pyramid: $S = \frac{1}{2}P\ell + B$
Cylinder: $S = 2\pi rh + 2\pi r^2$	Cone: $S = \pi r\ell + \pi r^2$
Sphere: $S = 4\pi r^2$	Area of a Sector: $A = \frac{x}{360^\circ} \cdot \pi r^2$
Volume	
Rectangular Prism: $V = \ell wh$	Cube: $V = s^3$
Prism: $V = Bh$	Pyramid: $V = \frac{1}{3}Bh$
Cylinder: $V = \pi r^2h$ $V = Bh$	Cone: $V = \frac{1}{3}Bh$ $V = \frac{1}{3}\pi r^2h$
Sphere: $V = \frac{4}{3}\pi r^3$	
Polygons	
Interior Angle Sum: $S = 180(n - 2)$	Measure of Exterior Angle: $\frac{360^\circ}{n}$

ACP Formulas
Geometry/Geometry PAP
2017–2018

Coordinate Geometry

Midpoint:	$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$
Distance:	$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
Slope of a Line:	$m = \frac{y_2 - y_1}{x_2 - x_1}$
Slope-Intercept Form of a Line:	$y = mx + b$
Point-Slope Form of a Line:	$y - y_1 = m(x - x_1)$
Standard Form of a Line:	$Ax + By = C$
Equation of a Circle:	$(x - h)^2 + (y - k)^2 = r^2$

Trigonometry

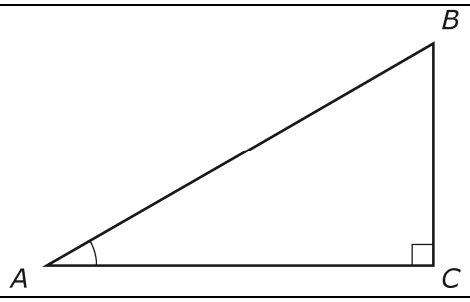
Pythagorean Theorem: $a^2 + b^2 = c^2$

Trigonometric Ratios:

$\sin A = \frac{\text{opposite leg}}{\text{hypotenuse}}$

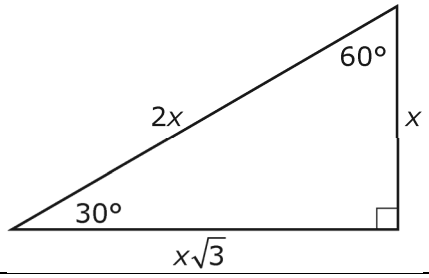
$\cos A = \frac{\text{adjacent leg}}{\text{hypotenuse}}$

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

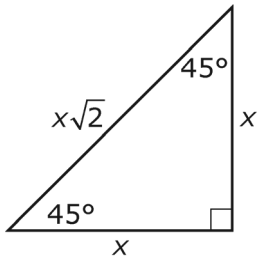


Special Right Triangles:

30° - 60° - 90°



45° - 45° - 90°



Law of Sines: $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

Law of Cosines: $a^2 = b^2 + c^2 - 2bc \cos A$ $b^2 = a^2 + c^2 - 2ac \cos B$ $c^2 = a^2 + b^2 - 2ab \cos C$

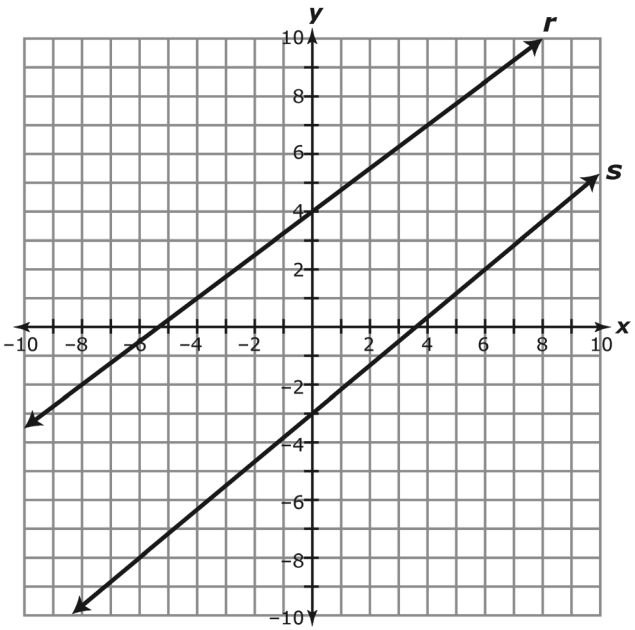
Probability

Permutations: $_nP_r = \frac{n!}{(n-r)!}$	Combinations: $_nC_r = \frac{n!}{(n-r)!r!}$

HIGH SCHOOL

EXAMPLE ITEMS Geometry Pre-AP, Sem 1

1 Lines ***r*** and ***s*** are graphed on a coordinate grid as shown.



Based on the information in the graph, which statement is true?

A Lines ***r*** and ***s*** are parallel lines.

B Lines ***r*** and ***s*** are perpendicular lines.

C Lines ***r*** and ***s*** never intersect.

D Lines ***r*** and ***s*** are neither parallel nor perpendicular.

2 Mr. Castro asked his Geometry class to consider the conditional statement shown.

> If a figure is a rectangle, then it has four sides.

Which statement represents the contrapositive of the conditional?

A If a figure has four sides, then it is a rectangle.

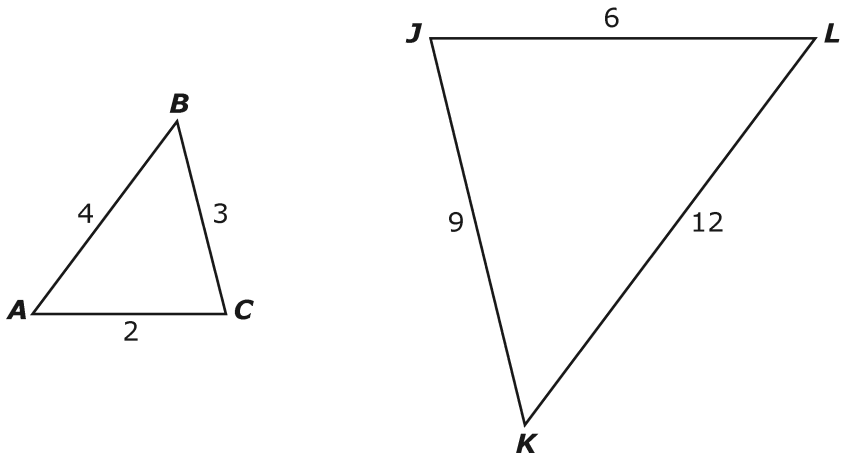
B If a figure does not have four sides, then it is not a rectangle.

C If a figure is not a rectangle, then it has four sides.

D If a figure is not a rectangle, then it does not have four sides.

EXAMPLE ITEMS Geometry Pre-AP, Sem 1

3 Two triangles are shown.



Based on the information in the diagram, which statement is true?

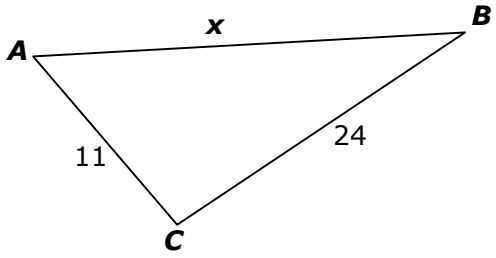
A $\Delta ABC \sim \Delta LKJ$, therefore $\overline{AB} \sim \overline{LK}$ and $\overline{AC} \sim \overline{LJ}$.

B $\Delta ABC \sim \Delta JKL$, therefore $\overline{AB} \sim \overline{LK}$ and $\overline{AC} \sim \overline{LJ}$.

C $\Delta ABC \sim \Delta JLK$, therefore $\overline{AB} \sim \overline{JL}$ and $\overline{AC} \sim \overline{JK}$.

D $\Delta ABC \sim \Delta LJK$, therefore $\overline{AB} \sim \overline{AC}$ and $\overline{LK} \sim \overline{LJ}$.

4 In ΔABC, $AC = 11$ and $BC = 24$.



Which inequality describes all possible lengths of $\overline{AB}$?

A $11 < x < 24$

B $11 \leq x \leq 24$

C $13 < x < 35$

D $13 \leq x \leq 35$

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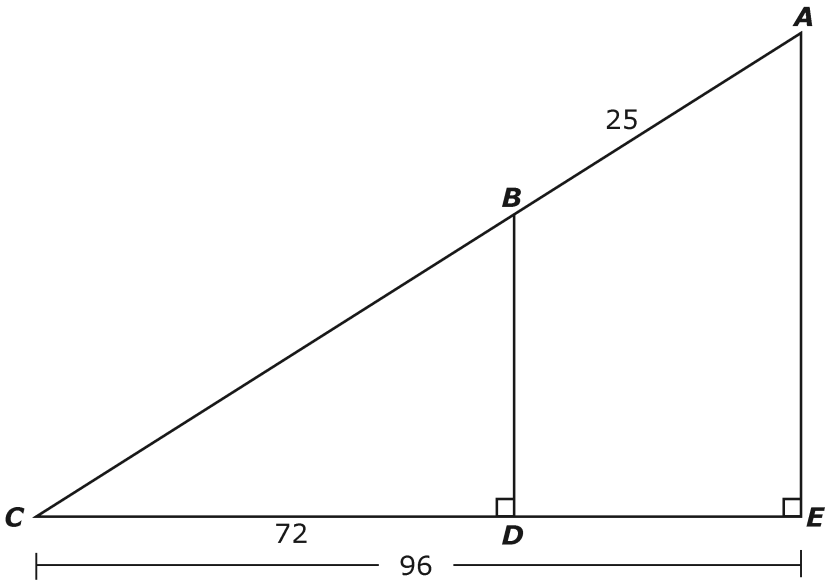
5 Triangle *ACE* is shown.



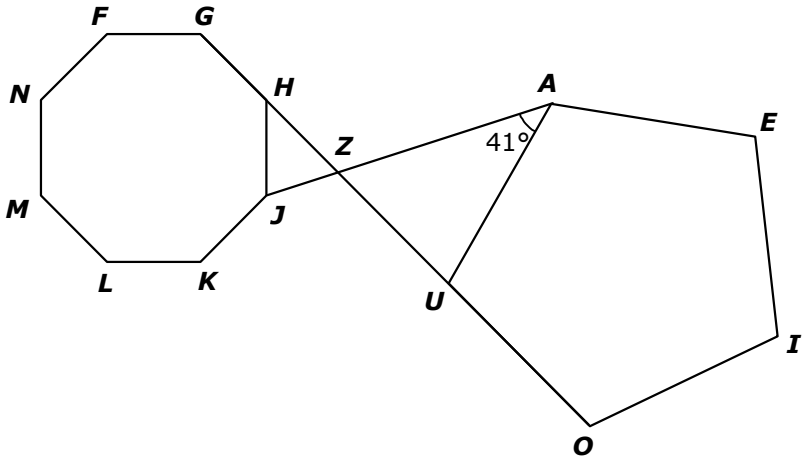
Based on the information in the diagram, what is the perimeter of ΔACE?

Record the answer and fill in the bubbles on the grid provided. Be sure to use the correct place value.

⊕	⊙	⊙	⊙	⊙	⊙	⊙	⊙
⊖	0	0	0	0	0	0	0
	1	1	1	1	1	1	1
	2	2	2	2	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4
	5	5	5	5	5	5	5
	6	6	6	6	6	6	6
	7	7	7	7	7	7	7
	8	8	8	8	8	8	8
	9	9	9	9	9	9	9

EXAMPLE ITEMS Geometry Pre-AP, Sem 1

6 In the figure shown, octagon *FGHJKLMN* and pentagon *AEIOU* are both regular polygons, $m\angle ZAU = 41°$, and $\overline{GO}$ is a straight line.



What is $m\angle HJZ$?

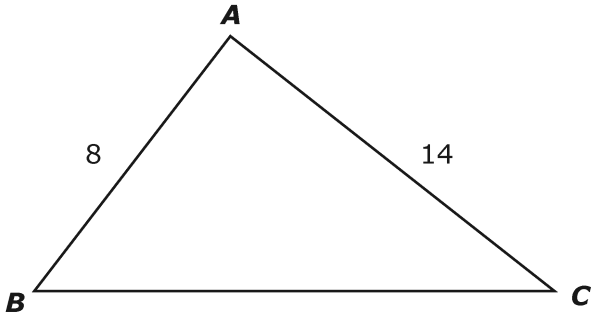
A 72°

B 69.5°

C 68°

D 45°

7 Triangle *ABC* is given.



What is a possible length for $\overline{BC}$?

A 6

B 20

C 22

D 25

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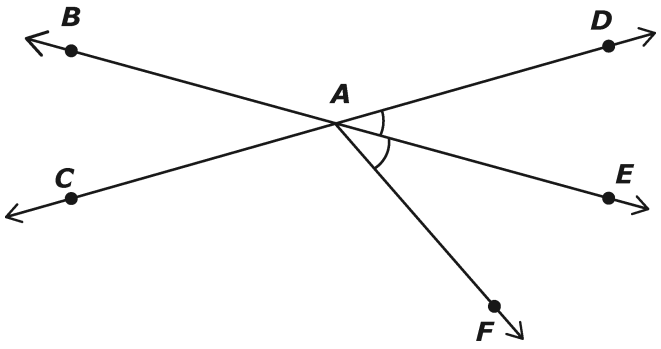
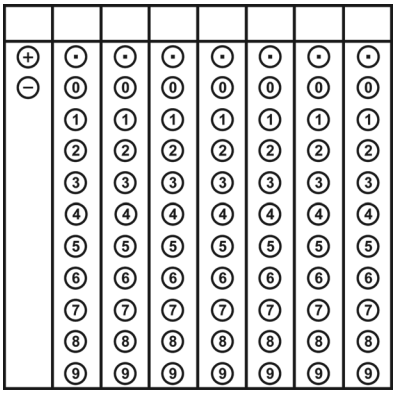
EXAMPLE ITEMS Geometry Pre-AP, Sem 1

8 In the diagram, $\angle EAD \cong \angle EAF$, $m\angle DAB = (6x + 14)°$ and $m\angle BAC = (4x + 6)°$.



Based on the information in the diagram, what is the measure of $\angle EAF$?

Record the answer and fill in the bubbles on the grid provided. Be sure to use the correct place value.



9 Which equation describes a line that passes through (–5, –8) and is perpendicular to $y = \frac{5}{4}x + 10$?

A $y = -0.8x - 12$

B $y = -1.25x - 14.25$

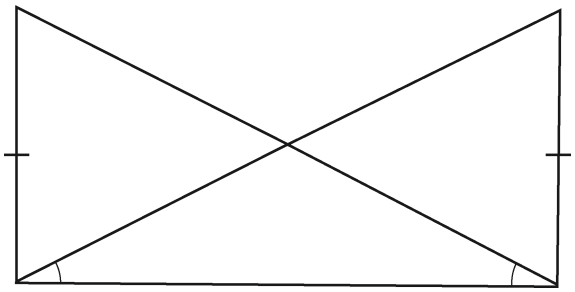
C $y = 1.25x - 1.75$

D $y = -0.8x + 3$

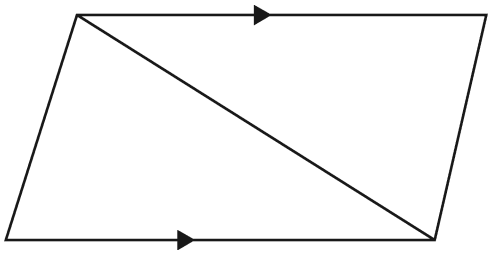
EXAMPLE ITEMS Geometry Pre-AP, Sem 1

10 Which diagram contains a pair of triangles that are congruent by the Side-Angle-Side congruence theorem?

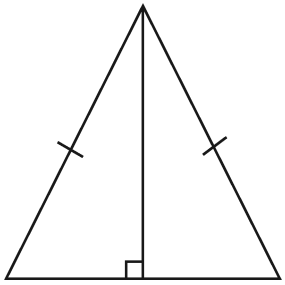
A



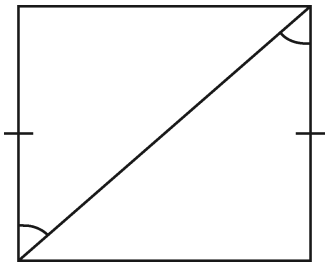
B



C

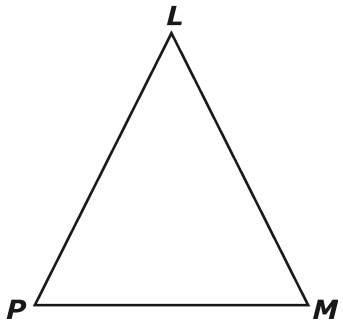


D



EXAMPLE ITEMS Geometry Pre-AP, Sem 1

11 $\triangle PLM$ is an isosceles triangle with $\overline{LP} \cong \overline{LM}$, $m\angle L = (4x)°$, and $m\angle P = (3x + 20)°$.



Based on this information, what is the measure of $\angle M$ in degrees?

Record the answer and fill in the bubbles on the grid provided. Be sure to use the correct place value.

⊕	⊙	⊙	⊙	⊙	⊙	⊙	⊙
⊖	0	0	0	0	0	0	0
	1	1	1	1	1	1	1
	2	2	2	2	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4
	5	5	5	5	5	5	5
	6	6	6	6	6	6	6
	7	7	7	7	7	7	7
	8	8	8	8	8	8	8
	9	9	9	9	9	9	9

12 Euclid's Fifth Postulate (Parallel Postulate) states "If there is a line and a point not on the line, then there exists exactly one line through the point that is parallel to the given line." Is this also true in spherical geometry?

A Yes, all postulates and facts are the same for spherical and plane geometry.

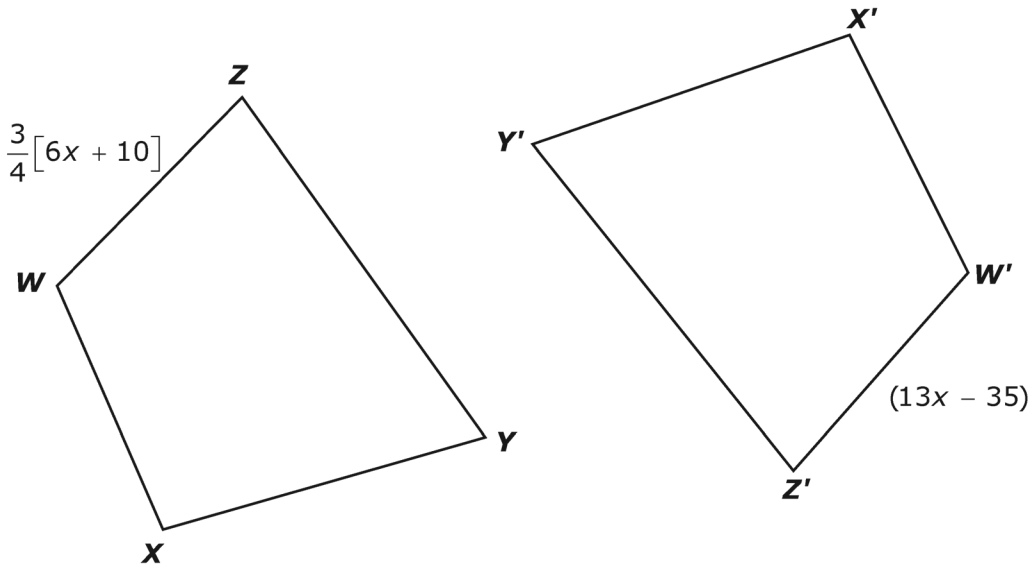
B Yes, there is exactly one line through the point that is parallel to the given line.

C No, there are many lines that pass through the point that is parallel to the given line.

D No, there are no parallel lines in spherical geometry.

EXAMPLE ITEMS Geometry Pre-AP, Sem 1

13 In the diagram, quadrilateral *WXYZ* is rotated to create quadrilateral *W'X'Y'Z'*.



Based on the information in the diagram, what is the length of $\overline{WZ}$?

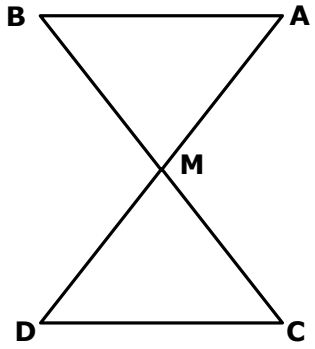
A 3

B 5

C 30

D 40

14 In the figure, *M* is the midpoint of $\overline{AD}$ and $\overline{BC}$.



Based on this information, which triangle congruence relationship proves $\triangle ABM \cong \triangle DCM$?

A ASA (Angle–Side–Angle)

B SAS (Side–Angle–Side)

C SSA (Side–Side–Angle)

D SSS (Side–Side–Side)

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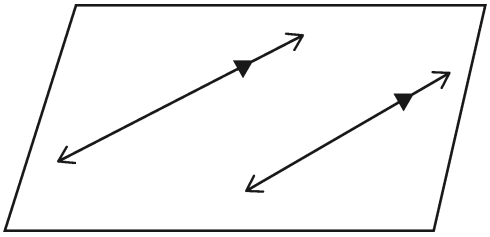
15 Consider the given conjecture.

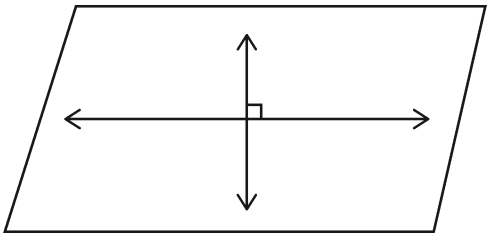
> If two lines are coplanar, then they will intersect.

Which diagram represents a counterexample to this conjecture?

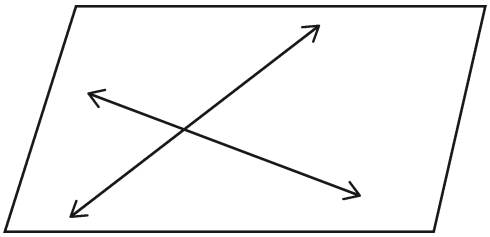
A



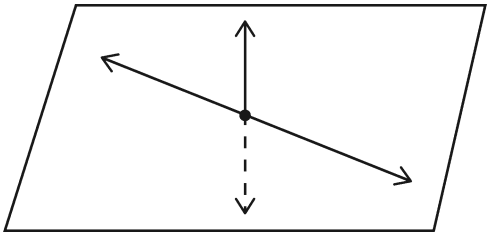
B



C

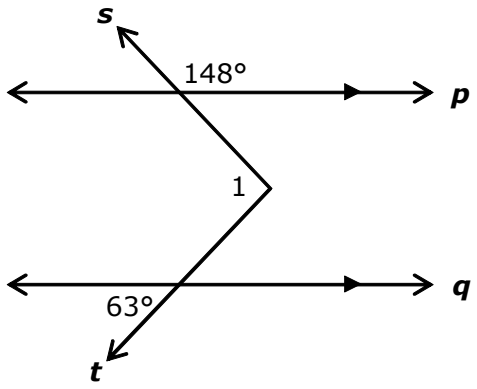


D



EXAMPLE ITEMS Geometry Pre-AP, Sem 1

16 The lines and rays in the figure are coplanar. Line ***p*** is parallel to line ***q***.



Based on the information in the diagram, what is $m\angle 1$?

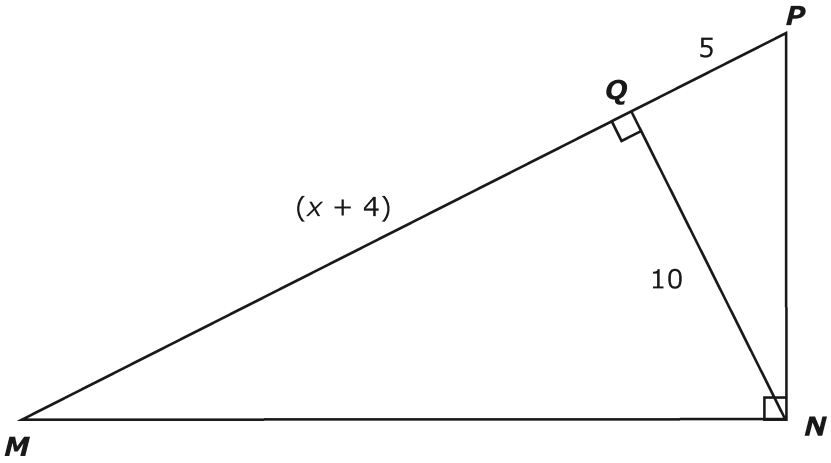
A 64°

B 85°

C 95°

D 211°

17 Triangle *MNP* is shown.



Based on the information in the diagram, what is the area of ΔMNP?

A 75

B 100

C 105

D 125

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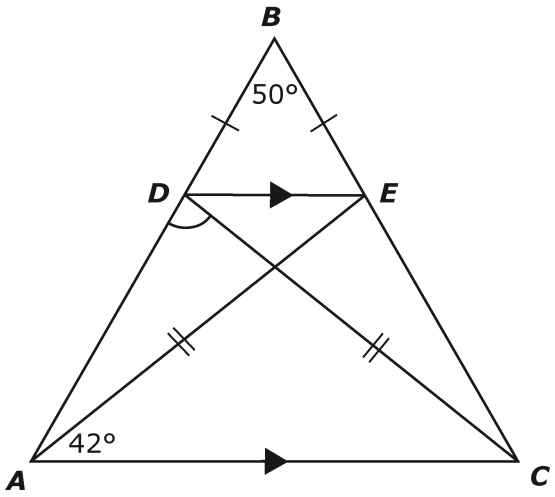
EXAMPLE ITEMS Geometry Pre-AP, Sem 1

18 In ΔABC, $\overline{DE} \parallel \overline{AC}$.



Based on the information in the diagram, what is the measure of $\angle ADC$?

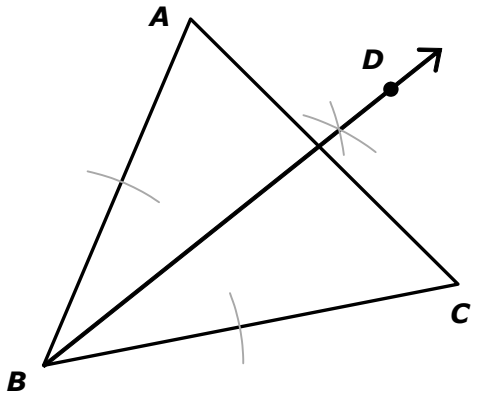
A 65°

B 73°

C 88°

D 96°

19 The diagram shows the arcs used to construct $\overrightarrow{BD}$, given ΔABC.



If $m\angle ABC = 84°$ and $m\angle CBD = (x^2 + 6)°$, what is the value of x?

A 6

B 18

C 36

D 42

Dallas ISD - Example Items

EXAMPLE ITEMS Geometry Pre-AP Key, Sem 1

Item#	Key	SE	SE Justification
1	D	G.2B	Use the slope formulas to verify geometric relationships parallelism or perpendicularity of pairs of lines.
2	B	G.4B	Identify the contrapositive of a conditional statement.
3	A	G.7A	Apply the definition of similarity in terms of a dilation to identify similar figures.
4	C	G.5D	Apply the Triangle Inequality Theorem to solve problems.
5	224	G.8A	Apply theorems about similar triangles to solve problems.
6	C	G.5A	Investigate patterns to make conjectures about geometric relationships, including interior angles of polygons.
7	B	G.5D	Apply the Triangle inequality theorem to solve problems.
8	70	G.6A	Apply theorems about angles formed by the intersection of lines and line segments, including vertical angles, to solve problems.
9	A	G.2C	Determine an equation of a line perpendicular to a given line that passes through a given point.
10	D	G.6B	Prove two triangles are congruent by applying the Side-Angle-Side congruence.
11	62	G.6D	Apply theorems about the relationships in triangles to solve problems.
12	D	G.4D	Compare geometric relationships between Euclidean and spherical geometries, including parallel lines.
13	C	G.6C	Apply the definition of congruence, in terms of rigid transformations.
14	B	G.6B	Prove two triangles are congruent by applying the Side-Angle-Side congruence conditions.
15	A	G.4C	Verify that a conjecture is false using a counterexample.
16	C	G.6A	Apply theorems about angles formed by parallel lines cut by a transversal to solve problems.
17	D	G.8B	Apply the relationships that exist when an altitude is drawn to the hypotenuse of a right triangle, including the geometric mean, to solve problems.
18	B	G.6D	Apply theorems about the relationships in triangles, including base angles of isosceles triangles, to solve problems.
19	A	G.5C	Use the constructions of angle bisectors to make conjectures about geometric relationships.