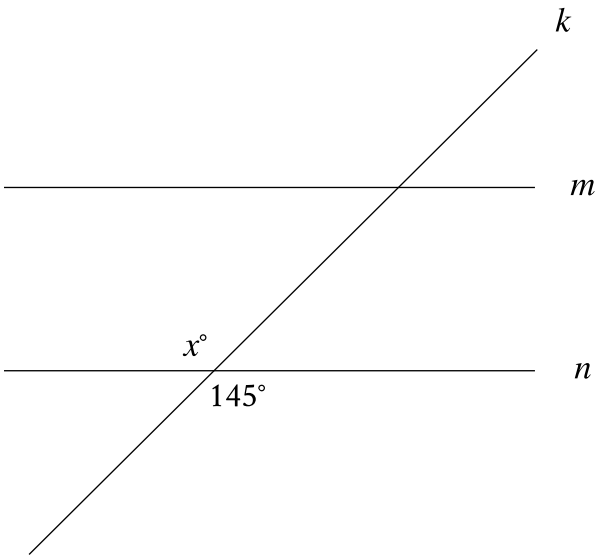
Question ID 4ee3fb4a

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: 4ee3fb4a



Note: Figure not drawn to scale.

In the figure, line m is parallel to line n, and line k intersects both lines. Which of the following statements is true?

A. The value of x is less than 145.

B. The value of x is greater than 145.

C. The value of x is equal to 145.

D. The value of x cannot be determined.

ID: 4ee3fb4a Answer

Correct Answer: C

Rationale

Choice C is correct. Vertical angles, or angles that are opposite each other when two lines intersect, are congruent. It's given that line k intersects line n. Based on the figure, the angle with measure x° and the angle with measure 145° are vertical angles. Therefore, the value of x is equal to 145.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 6e95d2bc

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: 6e95d2bc

In $\triangle RST$, the measure of $\angle R$ is 63°. Which of the following could be the measure, in degrees, of $\angle S$?

A. 116

B. 118

C. 126

D. 180

ID: 6e95d2bc Answer

Correct Answer: A

Rationale

Choice A is correct. The sum of the measures of the angles of a triangle is 180°. Therefore, the sum of the measures of $\angle R$, $\angle S$, and $\angle T$ is 180°. It's given that the measure of $\angle R$ is 63°. It follows that the sum of the measures of $\angle S$ and $\angle T$ is $(180 - 63)^\circ$, or 117°. Therefore, the measure of $\angle S$, in degrees, must be less than 117. Of the given choices, only 116 is less than 117. Thus, the measure, in degrees, of $\angle S$ could be 116.

Choice B is incorrect. If the measure of $\angle S$ is 118°, then the sum of the measures of the angles of the triangle is greater than, not equal to, 180°.

Choice C is incorrect. If the measure of $\angle S$ is 126°, then the sum of the measures of the angles of the triangle is greater than, not equal to, 180°.

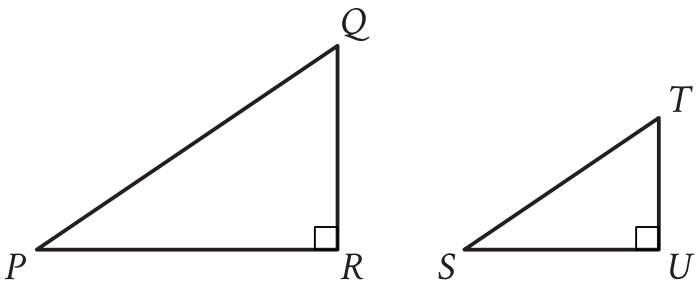
Choice D is incorrect. This is the sum of the measures of the angles of a triangle, in degrees.

Question Difficulty: Easy

Question ID f963d751

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: f963d751



Note: Figures not drawn to scale.

Right triangles PQR and STU are similar, where P corresponds to S. If the measure of angle Q is 18°, what is the measure of angle S?

A. 18°

B. 72°

C. 82°

D. 162°

ID: f963d751 Answer

Correct Answer: B

Rationale

Choice B is correct. In similar triangles, corresponding angles are congruent. It's given that right triangles PQR and STU are similar, where angle P corresponds to angle S. It follows that angle P is congruent to angle S. In the triangles shown, angle R and angle U are both marked as right angles, so angle R and angle U are corresponding angles. It follows that angle Q and angle T are corresponding angles, and thus, angle Q is congruent to angle T. It's given that the measure of angle Q is 18°, so the measure of angle T is also 18°. Angle U is a right angle, so the measure of angle U is 90°. The sum of the measures of the interior angles of a triangle is 180°. Thus, the sum of the measures of the interior angles of triangle STU is 180 degrees. Let s represent the measure, in degrees, of angle S. It follows that $s + 18 + 90 = 180$, or $s + 108 = 180$. Subtracting 108 from both sides of this equation yields $s = 72$. Therefore, if the measure of angle Q is 18 degrees, then the measure of angle S is 72 degrees.

Choice A is incorrect. This is the measure of angle T.

Choice C is incorrect and may result from conceptual or calculation errors.

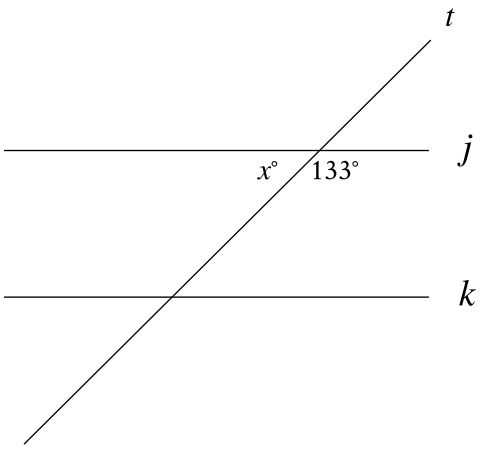
Choice D is incorrect. This is the sum of the measures of angle S and angle U.

Question Difficulty: Easy

Question ID ea980ef3

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: ea980ef3



Note: Figure not drawn to scale.

In the figure, line j is parallel to line k. What is the value of x?

ID: ea980ef3 Answer

Correct Answer: 47

Rationale

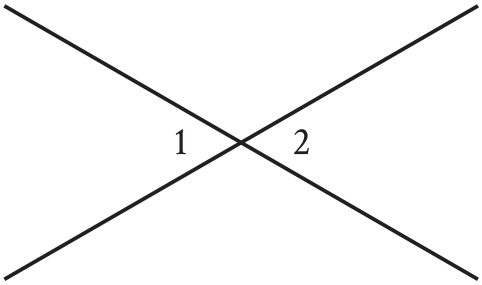
The correct answer is 47. Based on the figure, the angle with measure x° and the angle with measure 133° together form a straight line. Therefore, these two angles are supplementary, so the sum of their measures is 180°. It follows that $x + 133 = 180$. Subtracting 133 from both sides of this equation yields $x = 47$.

Question Difficulty: Easy

Question ID 34dd43dc

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: 34dd43dc



Note: Figure not drawn to scale.

In the figure, two lines intersect at a point. Angle 1 and angle 2 are vertical angles. The measure of angle 1 is 72°. What is the measure of angle 2?

A. 72°

B. 108°

C. 144°

D. 288°

ID: 34dd43dc Answer

Correct Answer: A

Rationale

Choice A is correct. It's given that angle 1 and angle 2 are vertical angles, and the measure of angle 1 is 72°. Vertical angles have equal measures. Therefore, the measure of angle 2 is 72°.

Choice B is incorrect. This is the measure of an angle that is supplementary, not congruent, to angle 1.

Choice C is incorrect. This is the sum of the measures of angle 1 and angle 2.

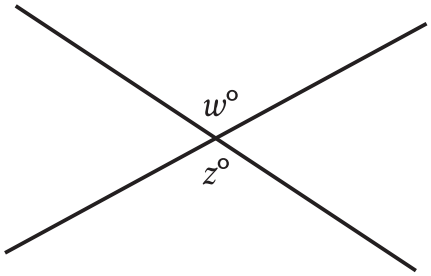
Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 9a00b5dc

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: 9a00b5dc



Note: Figure not drawn to scale.

In the figure, two lines intersect at a point. If $w = 136$, what is the value of z?

A. 36

B. 44

C. 68

D. 136

ID: 9a00b5dc Answer

Correct Answer: D

Rationale

Choice D is correct. In the figure shown, the angles with measures w° and z° are vertical angles. Since vertical angles are congruent, $w = z$. Therefore, if $w = 136$, the value of z is 136.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect. This is the measure, in degrees, of an angle that's supplementary, not congruent, to the angle with measure w°.

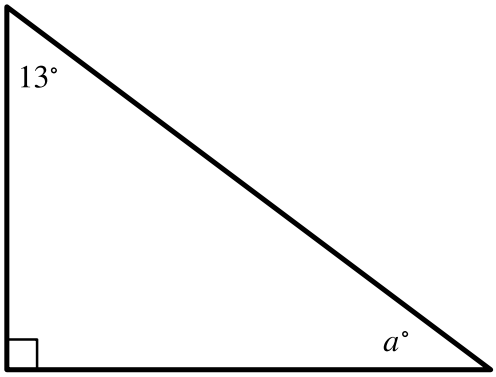
Choice C is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 1540f856

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: 1540f856



Note: Figure not drawn to scale.

In the right triangle shown, what is the value of a?

A. 13

B. 77

C. 90

D. 103

ID: 1540f856 Answer

Correct Answer: B

Rationale

Choice B is correct. The triangle shown is a right triangle, where the interior angle shown with a right angle symbol has a measure of 90°. It's shown that the other two interior angles measure 13° and a°. The sum of the measures of the interior angles of a triangle is 180°; therefore, $90 + 13 + a = 180$. Combining like terms on the left-hand side of this equation yields $103 + a = 180$. Subtracting 103 from both sides of this equation yields $a = 77$.

Choice A is incorrect. This is the measure, in degrees, of the other acute interior angle of the right triangle, not the value of a.

Choice C is incorrect. This is the measure, in degrees, of the right angle of the right triangle, not the value of a.

Choice D is incorrect. This is the sum of the measures, in degrees, of the other two interior angles of the right triangle, not the value of a.

Question Difficulty: Easy

Question ID aac3872b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: aac3872b

In triangle ABC, the measure of angle B is 52° and the measure of angle C is 17°. What is the measure of angle A?

A. 21°

B. 35°

C. 69°

D. 111°

ID: aac3872b Answer

Correct Answer: D

Rationale

Choice D is correct. The sum of the angle measures of a triangle is 180°. Adding the measures of angles B and C gives $52 + 17 = 69^\circ$. Therefore, the measure of angle A is $180 - 69 = 111^\circ$.

Choice A is incorrect and may result from subtracting the sum of the measures of angles B and C from 90°, instead of from 180°.

Choice B is incorrect and may result from subtracting the measure of angle C from the measure of angle B.

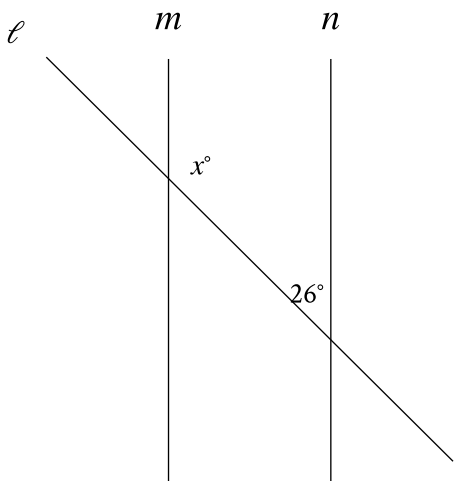
Choice C is incorrect and may result from adding the measures of angles B and C but not subtracting the result from 180°.

Question Difficulty: Easy

Question ID f47594d0

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: f47594d0



Note: Figure not drawn to scale.

In the figure shown, line m is parallel to line n. What is the value of x?

A. 13

B. 26

C. 52

D. 154

ID: f47594d0 Answer

Correct Answer: D

Rationale

Choice D is correct. The sum of consecutive interior angles between two parallel lines and on the same side of the transversal is 180 degrees. Since it's given that line m is parallel to line n, it follows that $x + 26 = 180$. Subtracting 26 from both sides of this equation yields 154. Therefore, the value of x is 154.

Choice A is incorrect. This is half of the given angle measure.

Choice B is incorrect. This is the value of the given angle measure.

Choice C is incorrect. This is twice the value of the given angle measure.

Question Difficulty: Easy

Question ID 1c55945b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: 1c55945b

In $\triangle XYZ$, the measure of $\angle X$ is 23° and the measure of $\angle Y$ is 66°. What is the measure of $\angle Z$?

A. 43°

B. 89°

C. 91°

D. 179°

ID: 1c55945b Answer

Correct Answer: C

Rationale

Choice C is correct. The triangle angle sum theorem states that the sum of the measures of the interior angles of a triangle is 180°. It's given that in $\triangle XYZ$, the measure of $\angle X$ is 23° and the measure of $\angle Y$ is 66°. It follows that the measure of $\angle Z$ is $(180 - 23 - 66)^\circ$, or 91°.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect. This is the sum of the measures of $\angle X$ and $\angle Y$, not the measure of $\angle Z$.

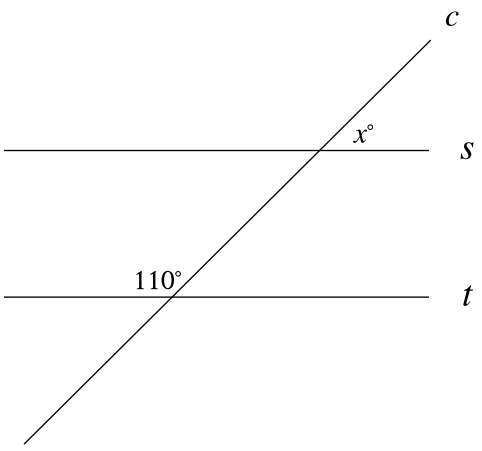
Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 8e5cbda2

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: 8e5cbda2



Note: Figure not drawn to scale.

In the figure shown, line c intersects parallel lines s and t. What is the value of x?

ID: 8e5cbda2 Answer

Correct Answer: 70

Rationale

The correct answer is 70. Based on the figure, the angle with measure 110° and the angle vertical to the angle with measure x° are same side interior angles. Since vertical angles are congruent, the angle vertical to the angle with measure x° also has measure x°. It's given that lines s and t are parallel. Therefore, same side interior angles between lines s and t are supplementary. It follows that $x + 110 = 180$. Subtracting 110 from both sides of this equation yields $x = 70$.

Question Difficulty: Easy

Question ID e5cc491b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: e5cc491b

In $\triangle XYZ$, the measure of $\angle X$ is 24° and the measure of $\angle Y$ is 98°. What is the measure of $\angle Z$?

A. 58°

B. 74°

C. 122°

D. 212°

ID: e5cc491b Answer

Correct Answer: A

Rationale

Choice A is correct. The triangle angle sum theorem states that the sum of the measures of the interior angles of a triangle is 180°. It's given that in $\triangle XYZ$, the measure of $\angle X$ is 24° and the measure of $\angle Y$ is 98°. It follows that the measure of $\angle Z$ is $(180 - 24 - 98)^\circ$, or 58°.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect. This is the sum of the measures of $\angle X$ and $\angle Y$, not the measure of $\angle Z$.

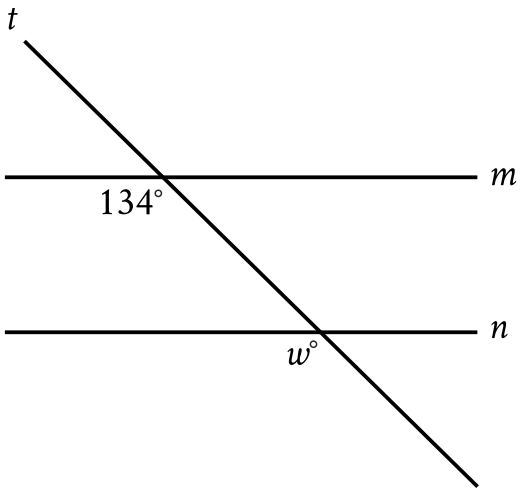
Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID c655ab2f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: c655ab2f



Note: Figure not drawn to scale.

In the figure, line m is parallel to line n. What is the value of w?

A. 13

B. 34

C. 66

D. 134

ID: c655ab2f Answer

Correct Answer: D

Rationale

Choice D is correct. It's given that lines m and n are parallel. Since line t intersects both lines m and n, it's a transversal. The angles in the figure marked as 134° and w° are on the same side of the transversal, where one is an interior angle with line m as a side, and the other is an exterior angle with line n as a side. Thus, the marked angles are corresponding angles. When two parallel lines are intersected by a transversal, corresponding angles are congruent and, therefore, have equal measure. It follows that $w^\circ = 134^\circ$. Therefore, the value of w is 134.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 2384a4cb

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: 2384a4cb

In triangle ABC, $AB = 4{,}680\ \text{millimeters (mm)}$ and $BC = 4{,}680\ \text{mm}$. Which statement is sufficient to prove that triangle ABC is equilateral?

A. $AC = 4{,}680\ \text{mm}$

B. $AC = 468\ \text{mm}$

C. $AC = 46.8\ \text{mm}$

D. $AC = 4.68\ \text{mm}$

ID: 2384a4cb Answer

Correct Answer: A

Rationale

Choice A is correct. In an equilateral triangle, all three sides have the same length. It's given that in triangle ABC, $AB = 4{,}680\ \text{mm}$ and $BC = 4{,}680\ \text{mm}$. Therefore, if $AC = 4{,}680\ \text{mm}$, then all three sides of triangle ABC have the same length, so triangle ABC is equilateral. Therefore, $AC = 4{,}680\ \text{mm}$ is sufficient to prove that triangle ABC is equilateral.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 6e2abed7

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: 6e2abed7

In a right triangle, the measure of one of the acute angles is 51°. What is the measure, in degrees, of the other acute angle?

A. 6

B. 39

C. 49

D. 51

ID: 6e2abed7 Answer

Correct Answer: B

Rationale

Choice B is correct. The sum of the measures of the interior angles of a triangle is 180 degrees. Since the triangle is a right triangle, it has one angle that measures 90 degrees. Therefore, the sum of the measures, in degrees, of the remaining two angles is $180 - 90$, or 90. It's given that the measure of one of the acute angles in the triangle is 51 degrees. Therefore, the measure, in degrees, of the other acute angle is $90 - 51$, or 39.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

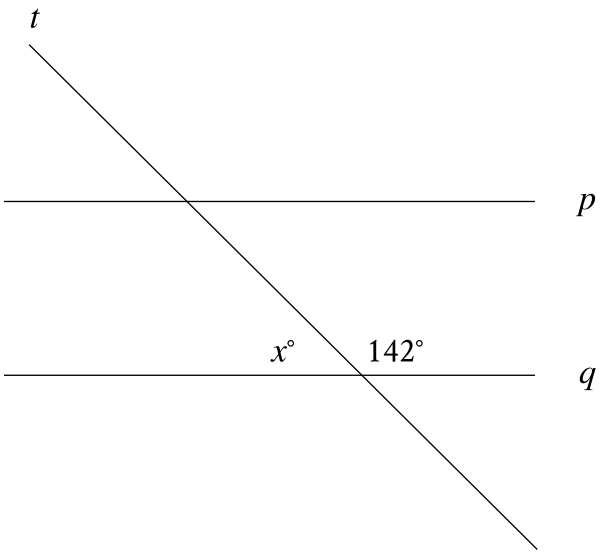
Choice D is incorrect. This is the measure, in degrees, of the acute angle whose measure is given.

Question Difficulty: Easy

Question ID 03bd81f1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: 03bd81f1



Note: Figure not drawn to scale.

In the figure, line p is parallel to line q, and line t intersects both lines. What is the value of $x + 142$?

A. 52

B. 90

C. 142

D. 180

ID: 03bd81f1 Answer

Correct Answer: D

Rationale

Choice D is correct. In the figure shown, the angle marked x° and the angle marked 142° form a linear pair of angles. If two angles form a linear pair of angles, the sum of the measures of the angles is 180°. Therefore, the value of $x + 142$ is 180.

Choice A is incorrect. This is 90 less than 142, not the sum of x and 142.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect. This is the measure, in degrees, of one of the angles shown.

Question Difficulty: Easy

Question ID 027efe3c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: 027efe3c

Triangles ABC and DEF are congruent, where A corresponds to D, and B and E are right angles. The measure of angle A is 18°. What is the measure of angle F?

A. 18°

B. 72°

C. 90°

D. 162°

ID: 027efe3c Answer

Correct Answer: B

Rationale

Choice B is correct. It's given that triangle ABC is congruent to triangle DEF. Corresponding angles of congruent triangles are congruent and, therefore, have equal measure. It's given that angle A corresponds to angle D, and that the measure of angle A is 18°. It's also given that the measures of angles B and E are 90°. Since these angles have equal measure, they are corresponding angles. It follows that angle C corresponds to angle F. Let x° represent the measure of angle C. Since the sum of the measures of the interior angles of a triangle is 180°, it follows that $18^\circ + 90^\circ + x^\circ = 180^\circ$, or $108^\circ + x^\circ = 180^\circ$. Subtracting 108° from both sides of this equation yields $x^\circ = 72^\circ$. Therefore, the measure of angle C is 72°. Since angle C corresponds to angle F, it follows that the measure of angle F is also 72°.

Choice A is incorrect. This is the measure of angle D, not the measure of angle F.

Choice C is incorrect. This is the measure of angle E, not the measure of angle F.

Choice D is incorrect. This is the sum of the measures of angles E and F, not the measure of angle F.

Question Difficulty: Easy

Question ID 40a475f8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: 40a475f8

Triangles EFG and JKL are congruent, where E, F, and G correspond to J, K, and L, respectively. The measure of angle E is 45° and the measure of angle F is 20°. What is the measure of angle J?

A. 20°

B. 45°

C. 135°

D. 160°

ID: 40a475f8 Answer

Correct Answer: B

Rationale

Choice B is correct. It's given that triangles EFG and JKL are congruent such that angle E corresponds to angle J. Corresponding angles of congruent triangles are congruent, so angle E and angle J must be congruent. Therefore, if the measure of angle E is 45°, then the measure of angle J is also 45°.

Choice A is incorrect. This is the measure of angle K, not angle J.

Choice C is incorrect and may result from conceptual or calculation errors.

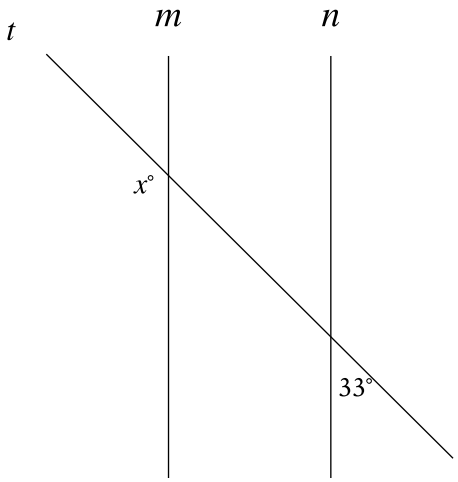
Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 6baaa5b3

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: 6baaa5b3



Note: Figure not drawn to scale.

In the figure, line m is parallel to line n, and line t intersects both lines. What is the value of x?

A. 33

B. 57

C. 123

D. 147

ID: 6baaa5b3 Answer

Correct Answer: D

Rationale

Choice D is correct. It's given that line m is parallel to line n, and line t intersects both lines. It follows that line t is a transversal. When two lines are parallel and intersected by a transversal, exterior angles on the same side of the transversal are supplementary. Thus, $x + 33 = 180$. Subtracting 33 from both sides of this equation yields $x = 147$. Therefore, the value of x is 147.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect and may result from conceptual or calculation errors.

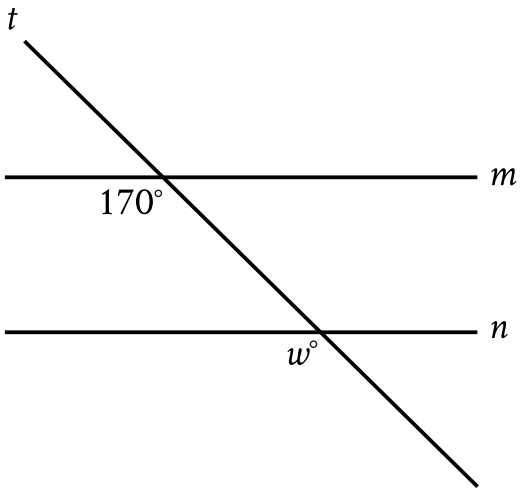
Choice C is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID e01724ba

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: e01724ba



Note: Figure not drawn to scale.

In the figure, line m is parallel to line n. What is the value of w?

A. 17

B. 30

C. 70

D. 170

ID: e01724ba Answer

Correct Answer: D

Rationale

Choice D is correct. It's given that lines m and n are parallel. Since line t intersects both lines m and n, it's a transversal. The angles in the figure marked as 170° and w° are on the same side of the transversal, where one is an interior angle with line m as a side, and the other is an exterior angle with line n as a side. Thus, the marked angles are corresponding angles. When two parallel lines are intersected by a transversal, corresponding angles are congruent and, therefore, have equal measure. It follows that $w^\circ = 170^\circ$. Therefore, the value of w is 170.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect and may result from conceptual or calculation errors.

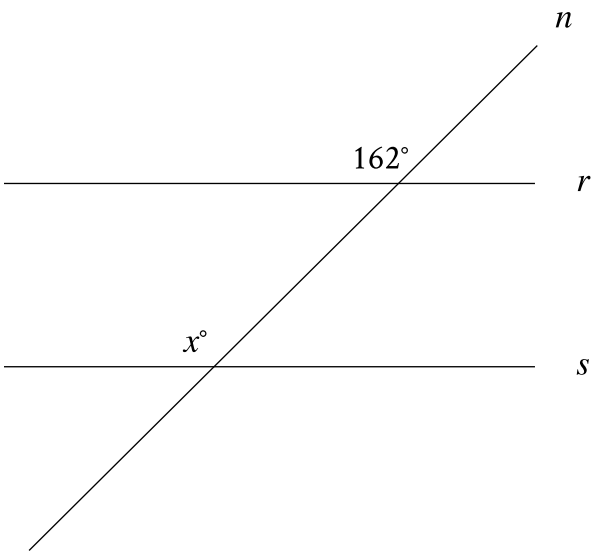
Choice C is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 08049d70

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Lines, angles, and triangles	Easy

ID: 08049d70



Note: Figure not drawn to scale.

In the figure, line n intersects lines r and s. Line r is parallel to line s. What is the value of x?

ID: 08049d70 Answer

Correct Answer: 162

Rationale

The correct answer is 162. It's given that line r is parallel to line s. Since line n intersects both lines r and s, it's a transversal. The angles in the figure marked as 162° and x° are on the same side of the transversal, where one is an interior angle with line s as a side, and the other is an exterior angle with line r as a side. Thus, the marked angles are corresponding angles. When two parallel lines are intersected by a transversal, corresponding angles are congruent and, therefore, have equal measure. It follows that the value of x is 162.

Question Difficulty: Easy