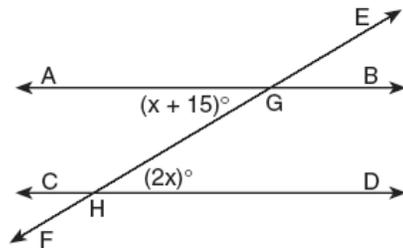

Angles

1

In the accompanying diagram, parallel lines AB and CD are intersected by transversal EF at points G and H , respectively, $m\angle AGH = x + 15$, and $m\angle GHD = 2x$.

Which equation can be used to find the value of x ?



- a. $2x = x + 15$
- b. $2x + x + 15 = 180$
- c. $2x + x + 15 = 90$
- d. $2x(x + 15) = 0$

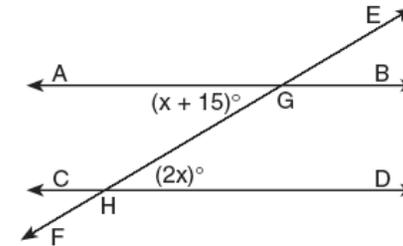
(New York Department of Education)

Angles

2

In the accompanying diagram, parallel lines AB and CD are intersected by transversal EF at points G and H , respectively, $m\angle AGH = x + 15$, and $m\angle GHD = 2x$.

What is the $m\angle AGH$?



- a. 180°
- b. 30°
- c. 60°
- d. 15°

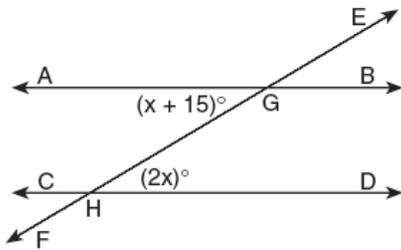
(Adapted from the New York Department of Education)

Angles

3

In the accompanying diagram, parallel lines AB and CD are intersected by transversal EF at points G and H , respectively, $m\angle AGH = x + 15$, and $m\angle GHD = 2x$.

What is the $m\angle FGB$?



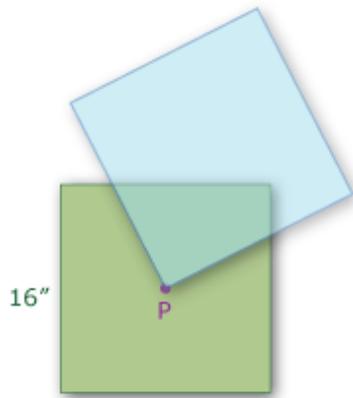
- a. 180°
- b. 150°
- c. 60°
- d. 15°

Areas

1

Let P be the center of a $16'' \times 16''$ square as well as a vertex of another $16'' \times 16''$ square that pivots freely around P .

What is the largest possible value for the area where these two squares overlap?



- a. 32 square inches
- b. 56 square inches
- c. 64 square inches
- d. 72 square inches

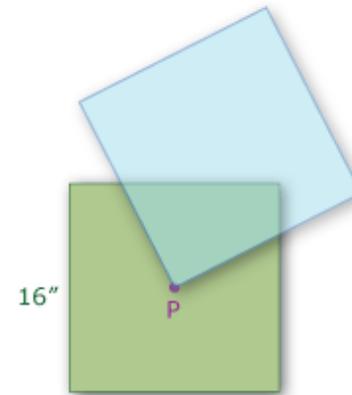
(from <http://mathforum.org/geopow/>)

Areas

2

Let P be the center of a $16'' \times 16''$ square as well as a vertex of another $16'' \times 16''$ square that pivots freely around P .

What is the smallest possible value for the area where these two squares overlap?



- a. 32 square inches
- b. 56 square inches
- c. 64 square inches
- d. 72 square inches

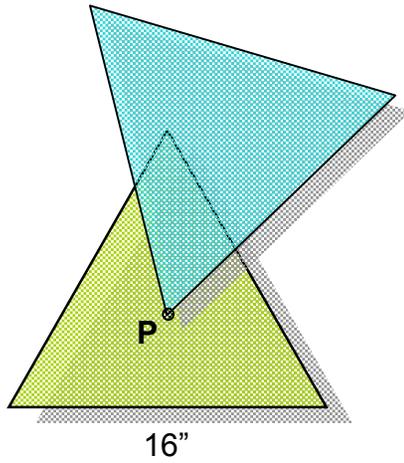
(Adapted from <http://mathforum.org/geopow/>)

Areas

3

Let P be the center of an equilateral triangle with a side length of 16" as well as a vertex of another 16" equilateral triangle that pivots freely around P .

What is the largest possible value for the area where these two triangles overlap?



- a. 6.16 square inches
- b. 12.36 square inches
- c. 18.48 square inches
- d. 24.64 square inches

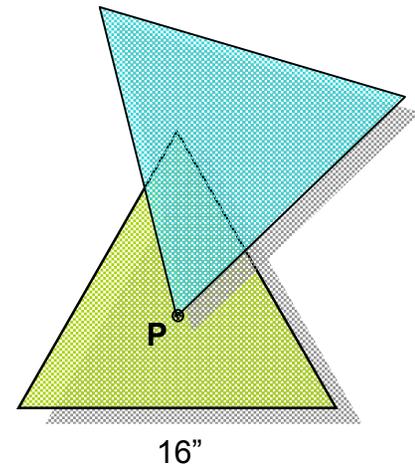
(Adapted from <http://mathforum.org/geopow/>)

Areas

4

Let P be the center of an equilateral triangle with a side length of 16" as well as a vertex of another 16" equilateral triangle that pivots freely around P .

What is the smallest possible value for the area where these two triangles overlap?



- a. 6.16 square inches
- b. 12.36 square inches
- c. 18.48 square inches
- d. 24.64 square inches

(Adapted from <http://mathforum.org/geopow/>)

Rate Plans

1

Karl needs to have his car towed to a repair shop. He received the following estimates for towing.

Company	Rate
Best Towing	\$ 32 plus \$2.00 per mile
Ace Towing	\$ 26 plus \$2.50 per mile
Bert's Towing	\$ 50 for 0 – 20 miles \$100 for 21 – 50 miles

If the distance to the repair shop is 35 miles, what is the least amount he could pay for towing?

- a. \$70.00
- b. \$82.50
- c. \$100.00
- d. \$102.00

(Maine Department of Education)

Rate Plans

2

Karl needs to have his car towed to a repair shop. He received the following estimates for towing.

Company	Rate
Best Towing	\$ 32 plus \$2.00 per mile
Ace Towing	\$ 26 plus \$2.50 per mile
Bert's Towing	\$ 50 for 0 – 20 miles \$100 for 21 – 50 miles

If the distance to the repair shop is 30 miles, what is the least amount he could pay for towing?

- a. \$50.00
- b. \$101.00
- c. \$100.00
- d. \$92.00

(Adapted from Maine Department of Education)

Rate Plans

3

Karl has a cell phone plan with Vary-I-Zone for 400 anytime minutes. This month he talked 450 minutes within his calling area. He's thinking about changing to a different company.

If he had a plan from one of the other two companies, what is the most amount of money he could have saved this month?

Company	Rate
<i>Vary-I-Zone</i>	<ul style="list-style-type: none">• \$39.95 per month—includes 400 anytime minutes• plus \$0.45 for each additional minute
<i>Sing-U-Air</i>	<ul style="list-style-type: none">• \$51.24 per month—includes 600 anytime minutes• plus \$0.40 for each additional minute
<i>Next-To-Nell</i>	<ul style="list-style-type: none">• \$45.99 per month—includes 500 anytime minutes• plus \$0.45 for each additional minute

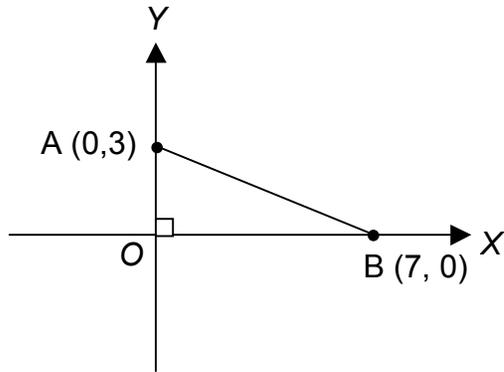
- a. \$6.04
- b. \$11.21
- c. \$11.29
- d. \$16.46

(Adapted from Maine Department of Education)

Rotating Shapes

1

If this triangle is rotated 360° about the **x-axis**, which of the following will result?



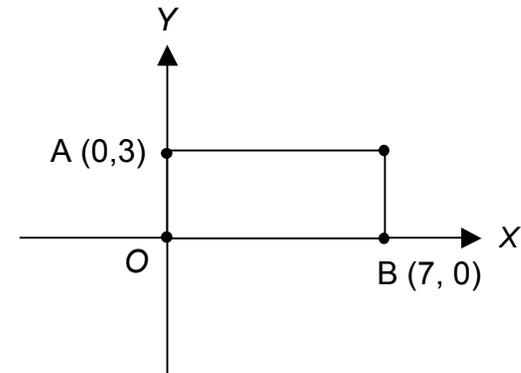
- a. cone with diameter of 6
- b. cone with diameter of 14
- c. circle with diameter of 6
- d. circle with diameter of 14

(Pennsylvania Department of Education)

Rotating Shapes

2

If this rectangle is rotated 360° about the **x-axis**, which of the following will result?



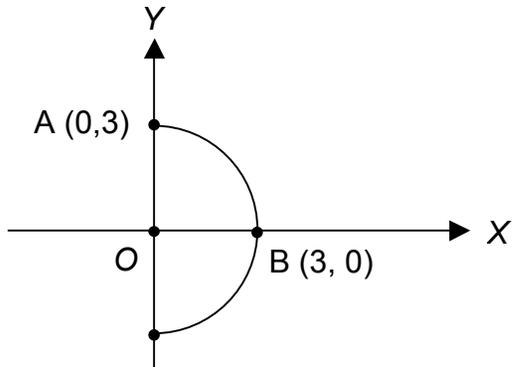
- a. cylinder with diameter of 6
- b. cylinder with diameter of 14
- c. circle with diameter of 6
- d. circle with diameter of 6

(Adapted from Pennsylvania Department of Education)

Rotating Shapes

3

If this semi-circle is rotated 360° about the **y-axis**, which of the following will result?



- a. cylinder with diameter of 3
- b. cylinder with diameter of 6
- c. sphere with diameter of 3
- d. sphere with diameter of 6

(Adapted from Pennsylvania Department of Education)