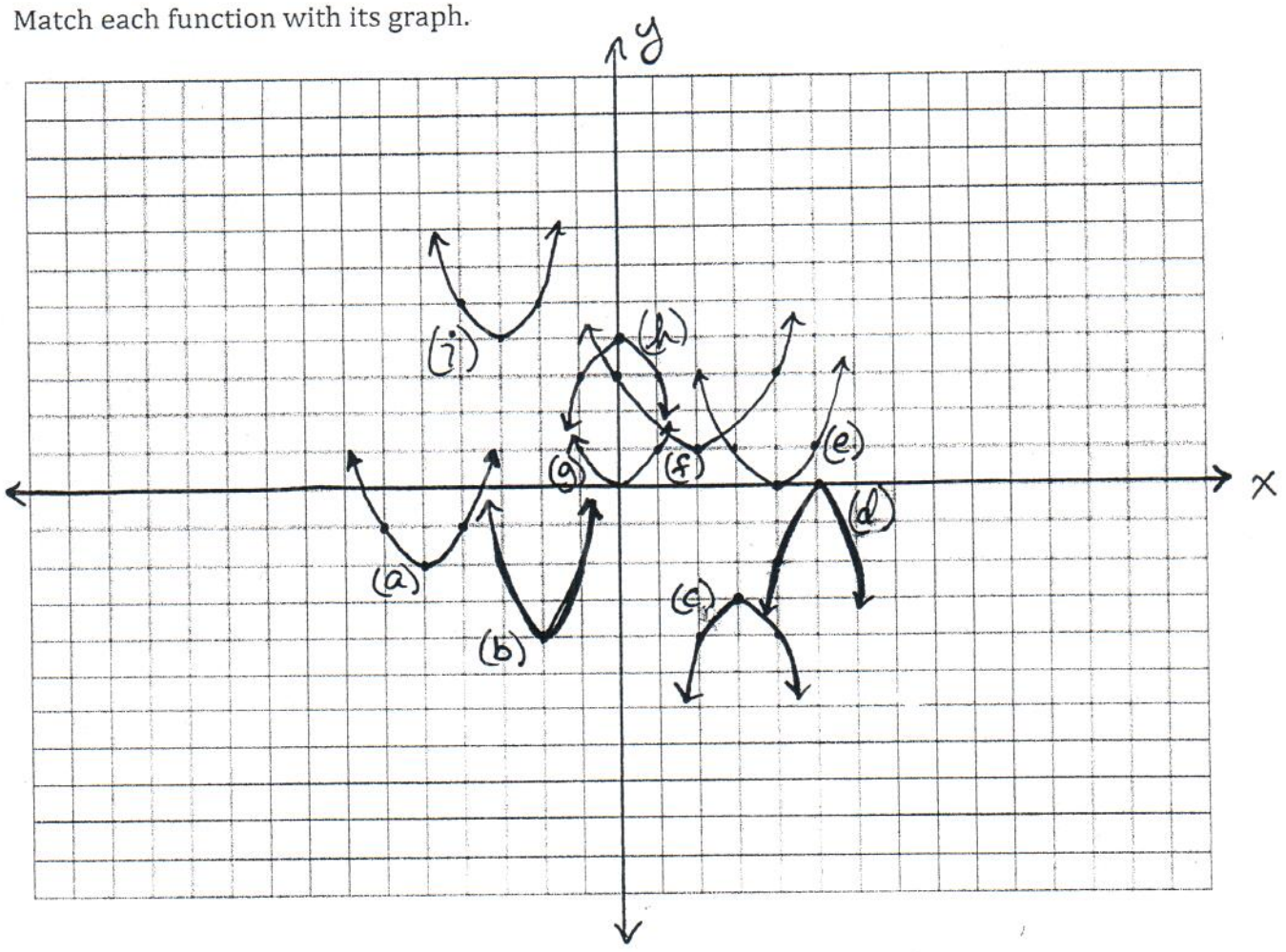
Transformations of Functions

Math 1314

Match each function with its graph.



1. $f(x)=(x-4)^2$ _____

2. $f(x)=-x^2+4$ _____

3. $f(x)=\frac{1}{2}(x-2)^2+1$ _____

4. $f(x)=(x+3)^2+4$ _____

5. $f(x)=-2(x-5)^2$ _____

6. $f(x)=-(x-3)^2-3$ _____

7. $f(x)=2(x+2)^2-4$ _____

8. $f(x)=(x+5)^2-2$ _____

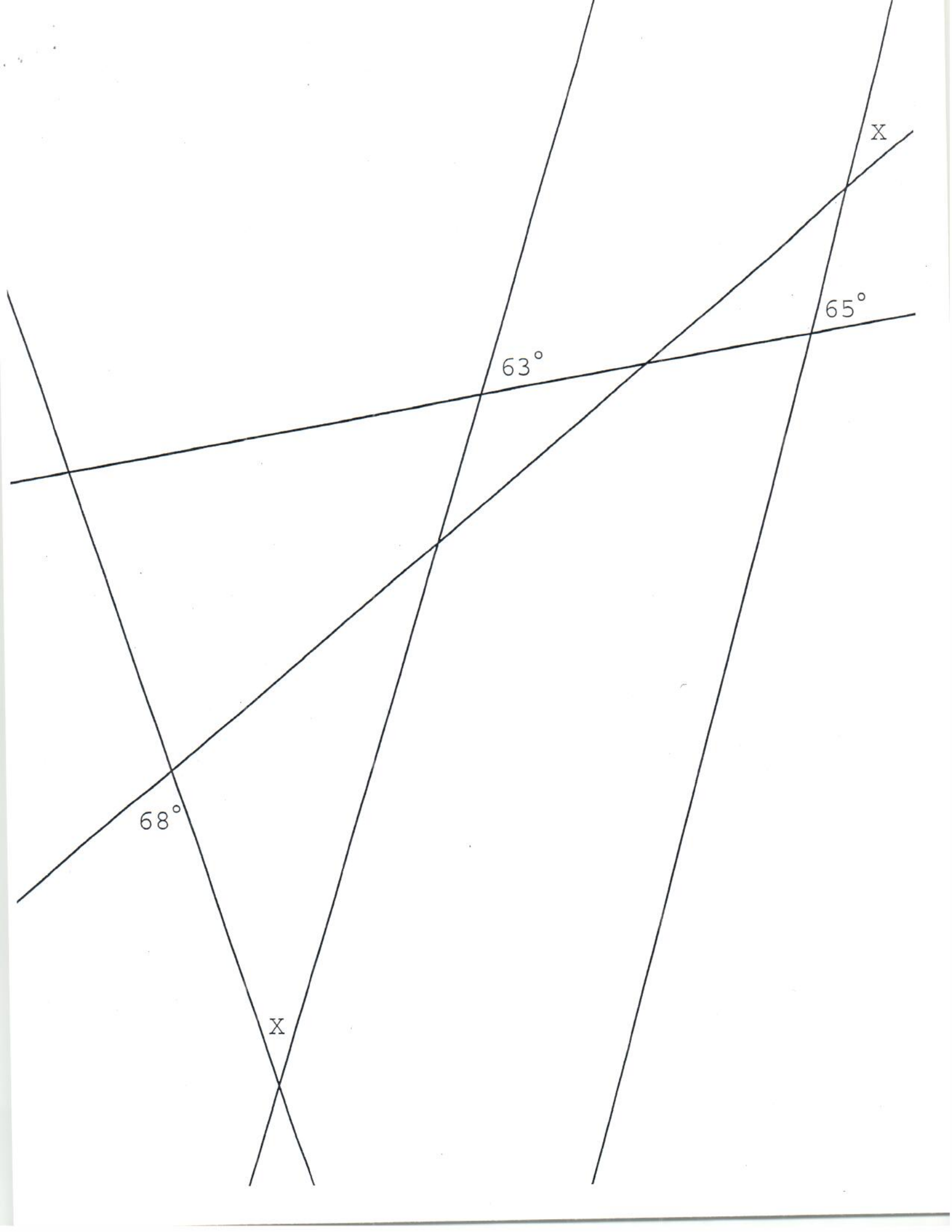
Surface Area of a Sphere

1. Determine the surface area of the orange? The group which is the closest will be awarded 3 extra points.

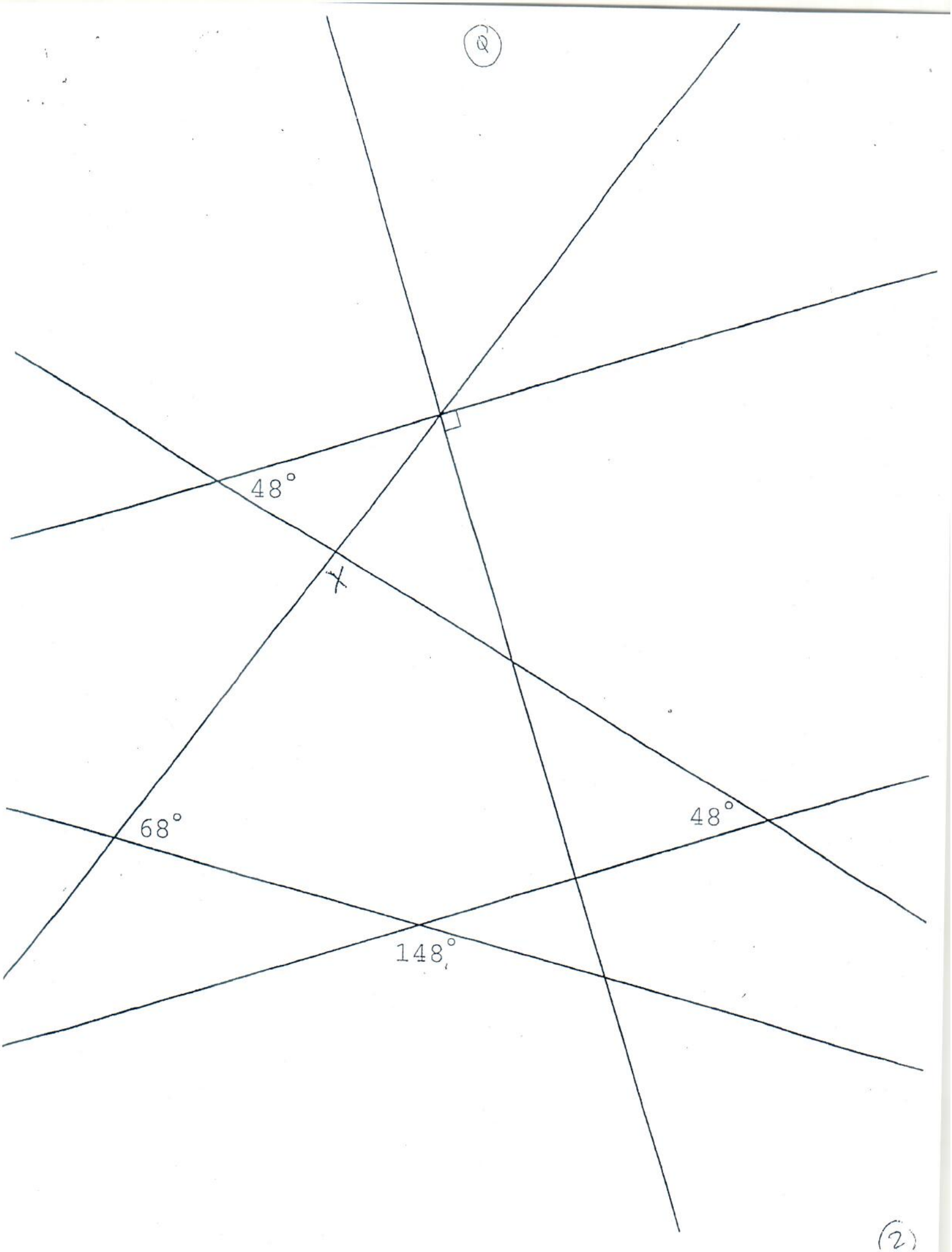
2. Cut your orange into two equal pieces. Trace one of the halves as many times onto a piece of paper without overlapping any of the circles. How many circles do you think the orange peel will fill? Using all of the orange peels cover the circles as close as possible so that there is no or very little space showing. How much area is being covered by your orange peels?

3. How many circles were filled?

4. Write a mathematical formula for the surface area of a sphere.


X
65°
63°
68°
X

Q



Logarithmic Equations

All bases are positive.

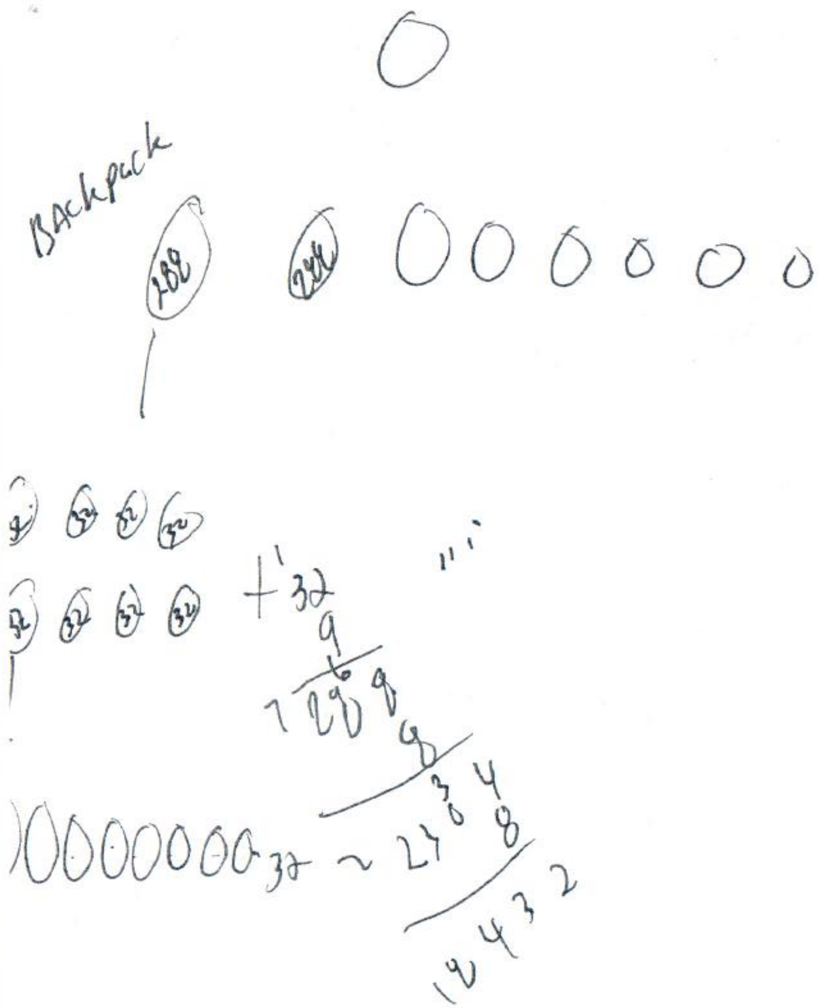
Cut out the squares. Arrange them so that touching edges are equivalent equations.

$\log_6 x=17$ $\log_x\sqrt{7}=\frac{1}{2}$ (1) $x=12$ $\log_3 x=5$	$x=11$ $\log_{17} x=6$ (2) $x=7$ $\log_x 1000=3$	$x=6$ $\log_5 x=7$ (3) $x=\frac{1}{2}$ $\log_5 125=x$	$x=8$ $\log_8 2=x$ (4) $\log_7 x=5$ $x=7$
$x=81$ $\log_{10} .001=x$ (5) $x=-6$ $\log_{\sqrt{2}} x=6$	$x=243$ $\log_9 27=x$ (6) $x=\frac{4}{3}$ $\log_x 16=2$	$x=13$ $\log_{\sqrt{3}} 729=x$ (7) $x=-2$ $\log_{2.5}=x$	$x=9$ $\log_{11} 121=x$ (8) $x=\frac{1}{4}$ $x=6$
$x=4$ $\log_{\frac{1}{2}}\frac{1}{2}=x$ (9) $x=-4$ $\log_{27} x=\frac{2}{3}$	$x=-1$ $\log_8 16=x$ (10) $x=27$ $\log_{23} 1=x$	$\log_7 x=21$ $\log_{\sqrt{55}}\frac{1}{55}=x$ (11) $x=-5$ $\log_{16} 8=x$	$x=10$ $x=\frac{5}{4}$ (12) $x=\frac{3}{2}$ $\log_2 64=x$
$x=0$ $\log_{\frac{1}{3}} 81=x$ (13) $x=-3$ $\log_{55} x=0$	$x=\frac{3}{4}$ $\log_x\sqrt{3}=\frac{1}{9}$ (14) $\log_8 x=3$ $\log_{\sqrt{3}} x=8$	$x=3$ $x=\frac{4}{5}$ (15) $x=2$ $\log_4 x=8$	$x=1$ $\log_{81}\sqrt{3}=x$ (16) $x=\frac{1}{3}$ $\log_{64} x=6$

Received from Dr. Phillip Kaatz, Mesalands CC, Tucomcari, NM

ANSWER KEY

Top: $x=11$ Left: $\log_{17}x=6$ **(2)** Right: $x=7$ Bottom: $\log_x 1000=3$	Top: $\log_6 x=17$ Left: $\log_x\sqrt{7}=\frac{1}{2}$ **(1)** Right: $x=12$ Bottom: $\log_3 x=5$	Top: $x=13$ Left: $\log_{\sqrt{3}}729=x$ **(7)** Right: $x=-2$ Bottom: $\log_2 .5=x$	Top: $\log_7 x=21$ Left: $\log_{\sqrt{5}}\frac{1}{5}=x$ **(11)** Right: $x=-5$ Bottom: $\log_{16}8=x$
Top: $x=10$ Left: $x=\frac{5}{4}$ **(12)** Right: $x=\frac{3}{2}$ Bottom: $\log_2 64=x$	Top: $x=243$ Left: $\log_9 27=x$ **(6)** Right: $x=\frac{4}{3}$ Bottom: $\log_x 16=2$	Top: $x=-1$ Left: $\log_8 16=x$ **(10)** Right: $x=27$ Bottom: $\log_{23}1=x$	Top: $x=\frac{3}{4}$ Left: $\log_x\sqrt{3}=\frac{1}{6}$ **(14)** Right: $\log_8 x=3$ Bottom: $\log_{\sqrt{3}}x=8$
Top: $x=6$ Left: $\log_5 x=7$ **(3)** Right: $x=\frac{1}{2}$ Bottom: $\log_5 125=x$	Top: $x=4$ Left: $\log_{\frac{1}{4}}\frac{1}{2}=x$ **(9)** Right: $x=-4$ Bottom: $\log_{27}x=\frac{2}{3}$	Top: $x=0$ Left: $\log_{\frac{1}{3}}81=x$ **(13)** Right: $x=-3$ Bottom: $\log_{55}x=0$	Top: $x=81$ Left: $\log_{10}.001=x$ **(5)** Right: $x=-6$ Bottom: $\log_{\sqrt{2}}x=6$
Top: $x=3$ Left: $x=\frac{4}{5}$ **(15)** Right: $x=2$ Bottom: $\log_4 x=8$	Top: $x=9$ Left: $\log_{11}121=x$ **(8)** Right: $x=\frac{1}{4}$ Bottom: $x=6$	Top: $x=1$ Left: $\log_{81}3=x$ **(16)** Right: $x=\frac{1}{3}$ Bottom: $\log_4 x=6$	Top: $x=8$ Left: $\log_8 2=x$ **(4)** Right: $\log_7 x=5$ Bottom: $x=7$



Backpack
288
224
+32
9
7298
9
2304
8
14432

34
8x4=32

How far is it from town *A* to town *B* in this cartoon?

MATH 1350 UNIT I
SAMPLE GROUP ACTIVITY: WHO DUNIT?

PURPOSE: Introduces the elimination problem-solving strategy.

GROUPING: Can be done individually or in groups of 3-4 students.

Inspector Bob E. Sleuth of the London Police Force is investigating a £ 1 million robbery at the Two Dot Diamond Exchange. The following suspects are in custody:

- "Green-faced" Larry. He gets so car sick, the police had to walk him to the station.
- "Gun Shy" Gordon. He has been afraid of guns since he shot off hs toe as a boy.
- "Loud Mouth" Louise. She is so shy, she leaves her Aunt Jane's house only at night to rent "Wild World of Wrestling" videos at the corner store.
- "Tombstone" Teri. She works the graveyard shift running a forklift at a warehouse.
- "Lefty" McCoy. He lost his left arm in a demolition derby accident.

Use the following clues to help Inspector Sleuth solve the crime:

a. The salesclerk told police the robber had a large handgun.
b. A waiting taxi whisked the robber away.
c. The robber wore a large trench coat and a ski mask.
d. The robber clowned around in front of the security cameras.
e. The manager said the robber nervously twiddled his or her thumbs while the clerk stuffed diamonds into some sacks.

Who should be held over for trial?

EXTENSIONS: Students should be able to explain how the clues helped them to eliminate innocent suspects and to determine the likely suspect.