

FOM - Flashback #4

1. An 8" x 10" photograph was scaled by a factor of 5:2. Is this an enlargement or a reduction? What are the new dimensions? By what factor has the perimeter changed by? By what factor has the area changed by?

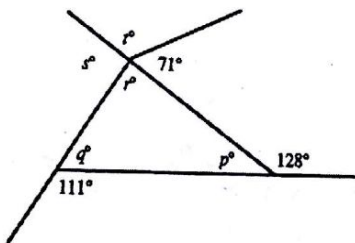
diagram: actual
5 : 2

$k = \frac{5}{2} = 2.5$

ENLARGEMENT

NEW DIM.	ORIG. PER.	AREA change
$8 \times 2.5 = 20$	$2(8) + 2(10) = 36$ "	$k^2 = \left(\frac{5}{2}\right)^2 = \frac{25}{4}$
$10 \times 2.5 = 25$	NEW PER. $2(20) + 2(25) = 90$ "	
$20'' \times 25''$	Factor change $\frac{90}{36} = \frac{5}{2}$	

2. Determine the angles marked with letters and provide a reason for each.



$\angle p = 52^\circ$ $\angle s$ on a line
 $\angle q = 69^\circ$ $\angle s$ on a line
 $\angle r = 59^\circ$ $\angle s$ in a Δ
 $\angle t = 59^\circ$ vert opp
 $\angle v = 71^\circ$ vert opp

3. Two aircraft, A and B, leave an airport at the same time. A flies on a course of 90° at 700 km/hr and B flies on a course of 290° at 600 km/hr. Draw a diagram to show the positions of the aircraft after 12 minutes. How far has each airplane travelled? How far apart are they?

$\rightarrow \frac{12 \text{ min}}{60} = \frac{1}{5} \text{ hr.}$

Plane A
 $700 \frac{\text{km}}{\text{hr}} \times \frac{1}{5} \text{ hr} = 140 \text{ km}$

Plane B
 $600 \frac{\text{km}}{\text{hr}} \times \frac{1}{5} \text{ hr} = 120 \text{ km}$

$x^2 = 120^2 + 140^2 - 2(120)(140)\cos 160$
 $x^2 = 19600 + 31573.67$
 $\sqrt{x^2} = \sqrt{51173.67}$
 $x = 225.6 \text{ km}$

4. Given a normal curve, shade in the area between the z-score of 2 and -1.5. Give the area as a decimal and as a percent. Label the diagram.

97.72%

6.68%

% between: $97.72 - 6.68 = 91.04\%$

5. Write the equation of a quadratic function in standard form with the following characteristics:

- a) Vertex at (6,4)
- b) Vertex of (3, -5) and opening down
- c) Vertex at the origin
- d) Opening up with no x intercept

a) $y = (x-6)^2 + 4$

b) $y = -(x-3)^2 - 5$

c) $y = x^2$

d) $y = (x-2)^2 + 5$

$\sqrt{44} = \sqrt{4 \cdot 11} = 2\sqrt{11}$

6. Determine the roots of the equation $2x^2 - 8x + 5 = 0$.

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$x = \frac{8 \pm 2\sqrt{11}}{4}$

$= \frac{8 \pm \sqrt{64 - 4(2)(5)}}{2(2)}$

$x = \frac{4 \pm \sqrt{11}}{2}$

$x = \frac{8 \pm \sqrt{44}}{4}$

7. Graph the inequality $2x - y > 6$ and $x < 2$

List three possible solutions for this system and prove algebraically.

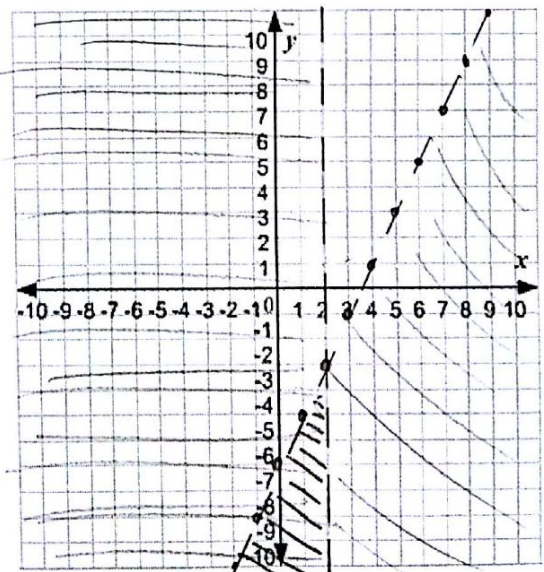
$2x - y > 6$

$2x - 6 > y$

test pt (0,0)

$2(0) - 0 > 6$

$0 > 6$ false



↓
solution area