

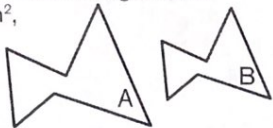




## Warm-Up 4

61. \_\_\_\_\_ degrees What is the degree measure of the complement to an angle that is a supplement to an angle of measure 163 degrees?
62. \_\_\_\_\_ If  $\begin{vmatrix} a & b \\ c & d \end{vmatrix} = ad - bc$ , what is the value of  $x$  when  $\begin{vmatrix} x & 4 \\ 3 & 10 \end{vmatrix} = 38$ ?
63. \_\_\_\_\_ : \_\_\_\_\_ a.m. Every morning, the Sharetrain arrives in Mountain View at 9:19 a.m. It takes Miranda between 17 and 21 minutes to walk to the train station from home. If she wants to guarantee that she will arrive at the station with at least 5 minutes to spare, what is the latest time she can leave home?
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64. \_\_\_\_\_ Ryan picks two different numbers from the set  $\{2, 3, 5, 7\}$  and multiplies them. What is the absolute difference between the greatest and the least products that Ryan can get?
65. \$ \_\_\_\_\_ Zu's zoo offers a promotional deal: get a free \$3 cotton candy and a free \$2 soda with the purchase of five \$12 admission tickets. A group of 20 students will each purchase an admission ticket. If half of them want cotton candy and one-fourth of them want soda, how many dollars would they save by using the promotional deal?
66. \_\_\_\_\_ ounces Preston has four potatoes, each of which weighs a whole number of ounces. The median weight of his potatoes is 11 ounces, and the mean weight of his potatoes is 12 ounces. What is the greatest possible difference between the weight of the heaviest and lightest of his potatoes?
67. \_\_\_\_\_ mm Photographers often rely on a rule to choose a shutter speed in seconds that is the reciprocal of the effective focal length of the lens in millimeters. If Jackie is shooting at a focal length of 80 mm, Clarise is shooting at 200 mm, Sage is shooting at 400 mm, and they all apply this reciprocal rule, what focal length corresponds to the sum of their shutter speeds?
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68. \_\_\_\_\_ in<sup>2</sup> Hexagons A and B are geometrically similar. The shortest sides of the two hexagons are 4 inches and 3 inches, respectively. If the area of hexagon A is 48 in<sup>2</sup>, what is the area of hexagon B?
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69. \_\_\_\_\_ What is the value of  $1 \times 12 + 2 \times 11 + 3 \times 10 + 4 \times 9 + 5 \times 8 + 6 \times 7 + 7 \times 6 + 8 \times 5 + 9 \times 4 + 10 \times 3 + 11 \times 2 + 12 \times 1$ ?
70. \_\_\_\_\_ degrees What is the measure of an interior angle of a regular polygon with 90 sides?

## Warm-up 4

(61) Two angles are complements if they add to  $90^\circ$ .  
Two angles are supplements if they add to  $180^\circ$ .

• Supplement to  $163^\circ = 180^\circ - 163^\circ = 17^\circ$

• Complement to  $17^\circ = 90^\circ - 17^\circ = 73^\circ$

(62)  $10x - 12 = 38$

$x = 5$

(63) Must arrive by 9:14 am. Assume 21 min. travel time.  
Must leave at 8:53 am

(64) Greatest :  $(5)(7) = 35$

Least :  $(2)(3) = 6$

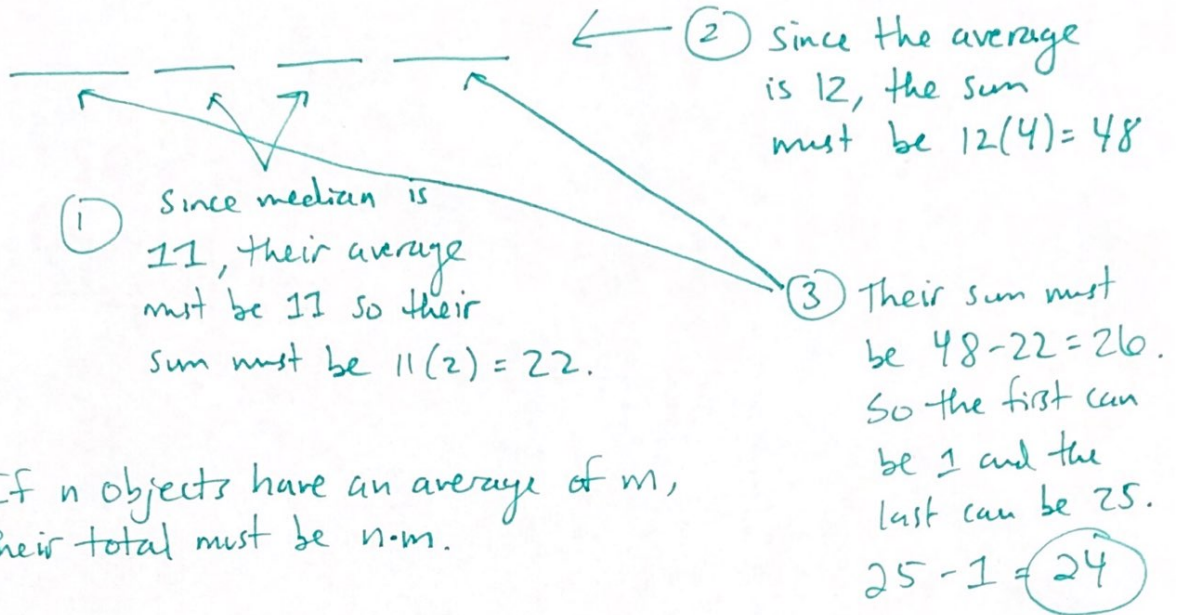
Difference :  $35 - 6 = 29$

(65) 20 students is 4 sets of five students. So you get  
4 free cotton candy and 4 free sodas.

That's  $4(\$3) + 4(\$2) = \$20$

## Warm-up 4

(66) From least to greatest:



\*Lesson: If  $n$  objects have an average of  $m$ ,  
their total must be  $n \cdot m$ .

(67)  $\frac{1}{80} + \frac{1}{200} + \frac{1}{400} = \frac{1}{50}$  ← shutter speeds.

Focal length = 50

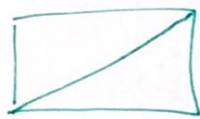
(68) Hexagon B's side is  $\frac{3}{4}$  as long as Hexagon A's side.  
So its area is  $(\frac{3}{4})^2 = \frac{9}{16}$  as large.

$48 \left( \frac{9}{16} \right) = 27$

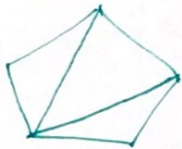
\*Lesson: If a shape's side is  $n$  times as large as another shape, its area is  $n^2$  ~~times~~ times as large.

(69)  $1 \times 12 + 2 \times 11 + 3 \times 10 + 4 \times 9 + 5 \times 8 + 6 \times 7 = 182$   
multiply by 2 :  $(364)$

(70) Every  $n$ -sided polygon has  $n-2$  triangles inside of them. ~~For~~ for example :



rectangle has 2 triangles



pentagon has 3 triangles



hexagon has 4 triangles

Every triangle has  $180^\circ$  degrees.

So 90-sided figure has 88 triangles, each with  $180^\circ$ .

$$88 \times 180 = 15,840^\circ$$

Divide by 90 to find each interior angle :  $\frac{15,840}{90}$

$(176^\circ)$