Solving Proportions

Solve each proportion. Leave your answer as a fraction in simplest form.

1) $\dfrac{6}{2} = \dfrac{4}{p}$

2) $\dfrac{4}{k} = \dfrac{8}{2}$

3) $\dfrac{n}{4} = \dfrac{8}{7}$

4) $\dfrac{5}{3} = \dfrac{x}{4}$

5) $\dfrac{m}{5} = \dfrac{7}{2}$

6) $\dfrac{7}{4} = \dfrac{r}{5}$

7) $\dfrac{7}{6} = \dfrac{5}{x}$

8) $\dfrac{6}{5} = \dfrac{2}{5n}$

Solve each proportion. Round your answers to the nearest hundredth.
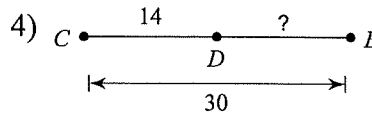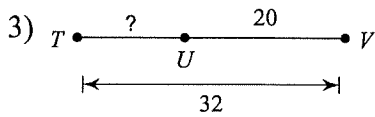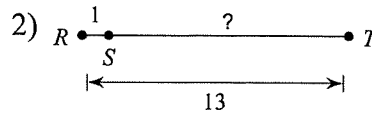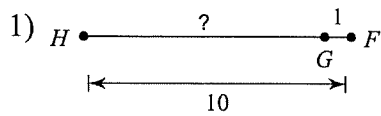
9) $\dfrac{7.7}{3.6} = \dfrac{2.3}{b}$

10) $\dfrac{v}{4.9} = \dfrac{5.4}{6.1}$
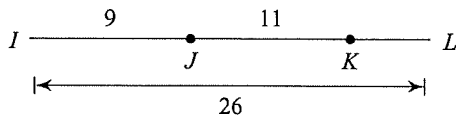
11) $\dfrac{6.3}{x} = \dfrac{2.56}{9.3}$

12) $\dfrac{3.4}{x} = \dfrac{2.17}{7.7}$
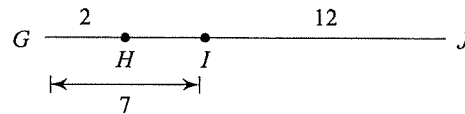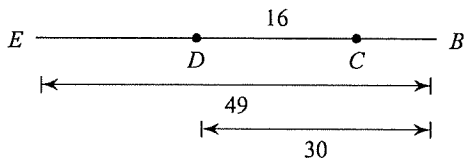
DAY 1

The Segment Addition Postulate

Find the length indicated.

1) H •———?———• G • F (with 1 above G)
   |←———— 10 ————→|

2) R • • S ———?———• T (with 1 above S)
   |←———— 13 ————→|

3) T •——?——• U ——20——• V
   |←———— 32 ————→|

4) C •——14——• D ——?——• E
   |←———— 30 ————→|

5) Find KL

   I ——9——• J ——11——• K —— L
   |←———— 26 ————→|

6) Find HJ

   G ——2——• H • I ——12—— J
   |←—— 7 ——→|

7) Find EC

   E ———• D ——16——• C ——— B
   |←———— 49 ————→|
   |←——— 30 ———→|

8) Find IK

   I ———• J ——12——• K ——— L
   |←———— 49 ————→|
   |←——— 31 ———→|

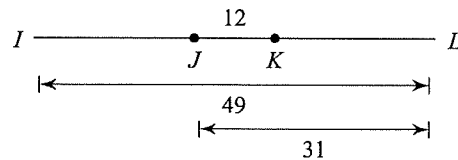**Points A, B, and C are collinear. Point B is between A and C. Find the length indicated.**

9) Find AC if $AB = 16$ and $BC = 12$.
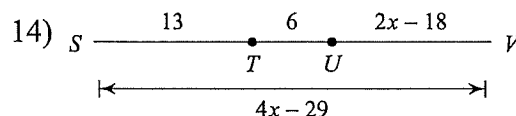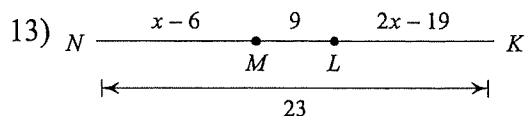
10) Find AC if $AB = 13$ and $BC = 9$.

DAY 2

Points A, B, and C are collinear. Point B is between A and C. Solve for x.

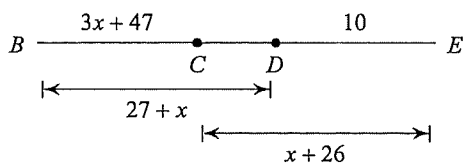11) $AC = 3x + 3$, $AB = -1 + 2x$, and $BC = 11$.
Find x.

12) $AC = 22$, $BC = x + 14$, and $AB = x + 10$.
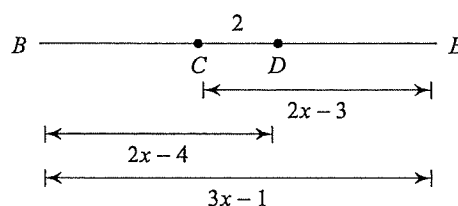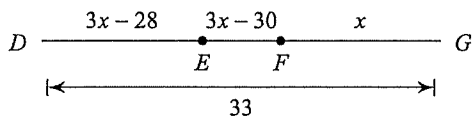Find x.

Solve for x.

13)

N ──── $x - 6$ ──── 9 ──── $2x - 19$ ──── K
M L
23

14)

S ──── 13 ──── 6 ──── $2x - 18$ ──── V
T U
$4x - 29$

Find the length indicated.

15) Find CE

B ──── $3x + 47$ ──── 10 ──── E
C D
$27 + x$
$x + 26$

16) Find BD

B ──── 2 ──── E
C D
$2x - 3$
$2x - 4$
$3x - 1$

17) Find DE

D ──── $3x - 28$ ──── $3x - 30$ ──── x ──── G
E F
33

18) Find EG

E ──── $14 + x$ ──── H
F G
$26 + x$
12
$x + 23$

Critical thinking questions:

19) Points A, B, C, D, and E are collinear and in that order. Find AC if $AE = x + 50$ and $CE = x + 32$.
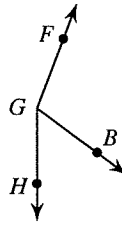
20) Write a segment addition problem using three points (like question 11) that asks the student to solve for x but has a solution $x = 20$.
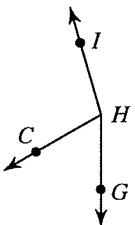
DAY 3

The Angle Addition Postulate

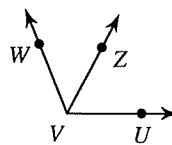1) Find $m\angle KLM$ if $m\angle KLB = 26°$
   and $m\angle BLM = 60°$.

2) Find $m\angle FGH$ if $m\angle FGB = 105°$
   and $m\angle BGH = 54°$.
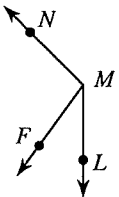
3) $m\angle GHC = 60°$ and $m\angle CHI = 104°$.
   Find $m\angle GHI$.

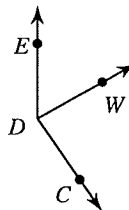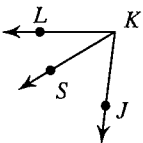4) Find $m\angle WVU$ if $m\angle ZVU = 62°$
   and $m\angle WVZ = 50°$.

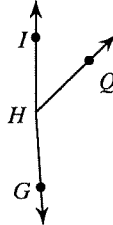5) $m\angle FMN = 99°$ and $m\angle LMF = 36°$.
   Find $m\angle LMN$.

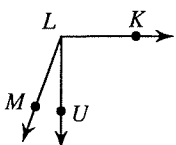6) Find $m\angle WDC$ if $m\angle EDC = 145°$
   and $m\angle EDW = 61°$.

7) Find $m\angle JKL$ if $m\angle SKL = 31°$
   and $m\angle JKS = 52°$.

8) Find $m\angle IHQ$ if $m\angle IHG = 176°$
   and $m\angle QHG = 130°$.

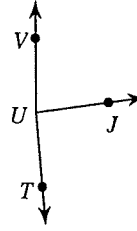9) Find $m\angle KLU$ if $m\angle ULM = 20°$
   and $m\angle KLM = 110°$.

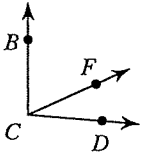10) Find $m\angle IJA$ if $m\angle AJK = 61°$
    and $m\angle IJK = 153°$.

DAY 4

11) $m\angle HGF = 16x + 4$, $m\angle EGF = 110°$,
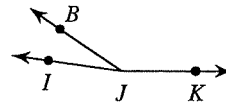and $m\angle HGE = 3x + 11$. Find x.

12) $m\angle VUT = 175°$, $m\angle VUJ = 17x - 3$,
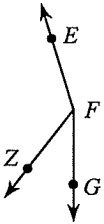and $m\angle JUT = 17x + 8$. Find x.

13) $m\angle FCD = x + 41$, $m\angle BCF = x + 78$,
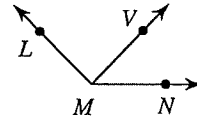and $m\angle BCD = 95°$. Find x.

14) Find x if $m\angle BJK = 146 + 2x$,
$m\angle IJK = 172°$, and $m\angle IJB = 2x + 26$.

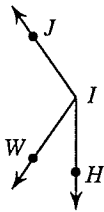15) $m\angle GFZ = 38°$, $m\angle ZFE = 2x + 125$,
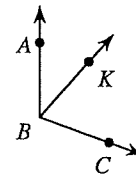and $m\angle GFE = x + 163$. Find x.

16) Find x if $m\angle LMN = 135°$,
$m\angle LMV = -1 + 45x$, and $m\angle VMN = 23x$.

17) Find $m\angle HIW$ if $m\angle WIJ = 10x$,
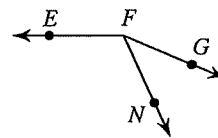$m\angle HIJ = 145°$, and $m\angle HIW = 2x + 13$.

18) $m\angle ABC = 17x + 8$, $m\angle ABK = 42°$,
and $m\angle KBC = 12x - 4$. Find $m\angle ABC$.

19) $m\angle ZHG = 11x - 1$, $m\angle IHZ = 24°$,
and $m\angle IHG = 12x + 13$. Find $m\angle IHG$.

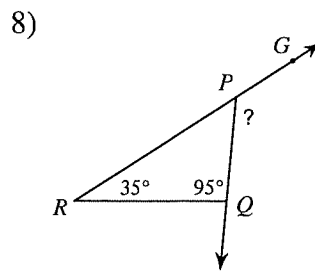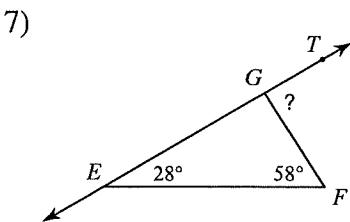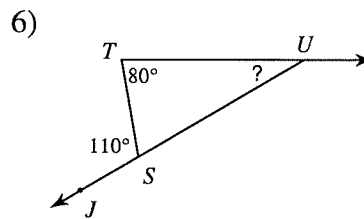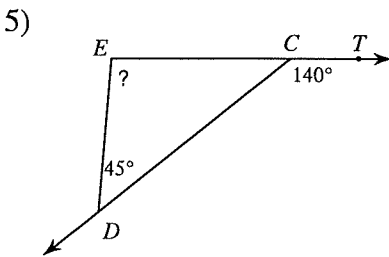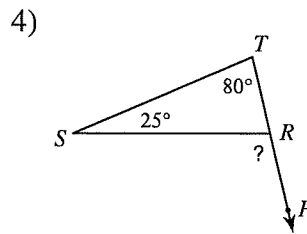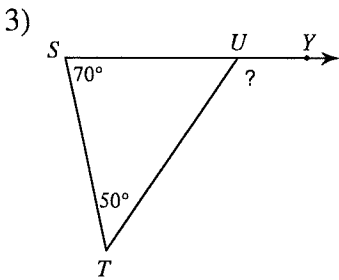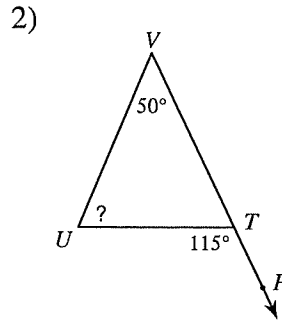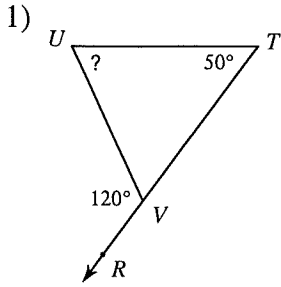20) $m\angle GFN = 4x + 10$, $m\angle NFE = 14x + 3$,
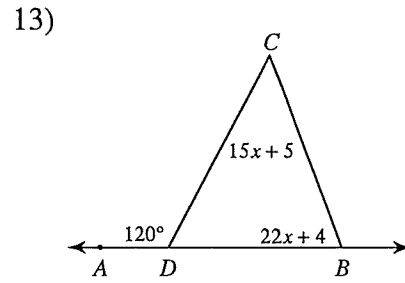and $m\angle GFE = 157°$. Find $m\angle NFE$.

DAY 5
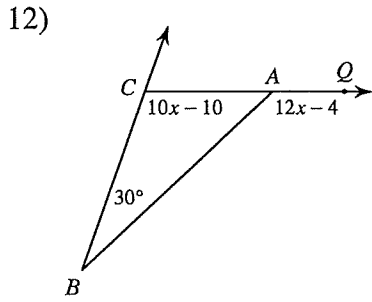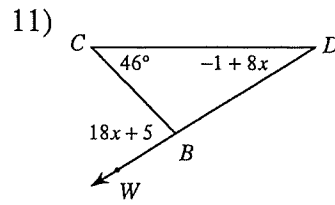
The Exterior Angle Theorem

Find the measure of each angle indicated.

1)
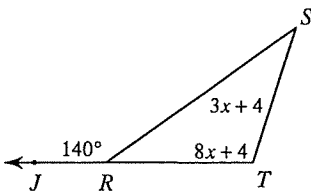

2)

3)

4)

5)

6)

7)

8)

Solve for *x*.

9)

DAY 6

10)

T S
$5x + 10$ $58°$
$11x + 2$ U
A

11)

C $46°$ $-1 + 8x$ D
$18x + 5$ B
W

12)

C A Q
$10x - 10$ $12x - 4$
$30°$
B

13)

C
$15x + 5$
$120°$ $22x + 4$
A D B

14)

D B V
$9x - 2$ $20x + 5$
$40°$
C

Find the measure of the angle indicated.

15) Find $m\angle S$.

S
$3x + 4$
$140°$ $8x + 4$
J R T

16) Find $m\angle H$.

G H
$89°$ $5x - 7$
$14x + 1$ F
D

17) Find $m\angle FAB$.

C
$55°$
$3x + 2$
B A
$13x - 3$
F

18) Find $m\angle YDC$.

Y
$15x + 5$ C
D $80°$
$6x + 6$
B

DAY 7

$$a^2 + b^2 = c^2$$

The Pythagorean Theorem and Its Converse

Name_____

Date_____ Period_____

Find the missing side of each triangle. Round your answers to the nearest tenth if necessary.

1)

$b = $ 12 in   13 in $= c$

$x = a$

2)

4 mi x

3 mi

3)

11.9 km

x

14.7 km

4)

6.3 mi

15.4 mi x

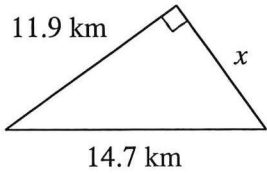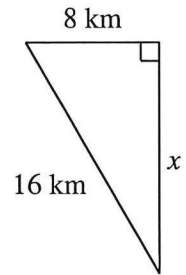**Find the missing side of each triangle. Leave your answers in simplest radical form.**

5)

15 yd x

13 yd

6)

8 km

16 km x

Find the missing side of each right triangle. Side c is the hypotenuse. Sides a and b are the legs. Leave your answers in simplest radical form.
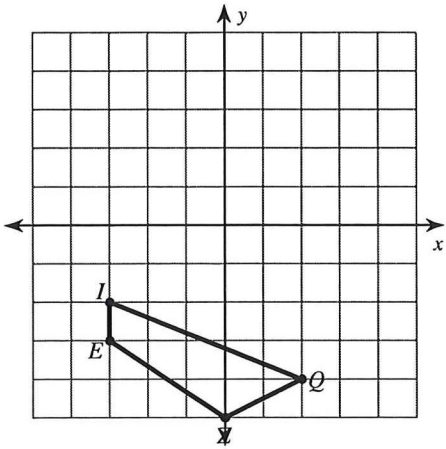
7) $a = 11$ m, $c = 15$ m

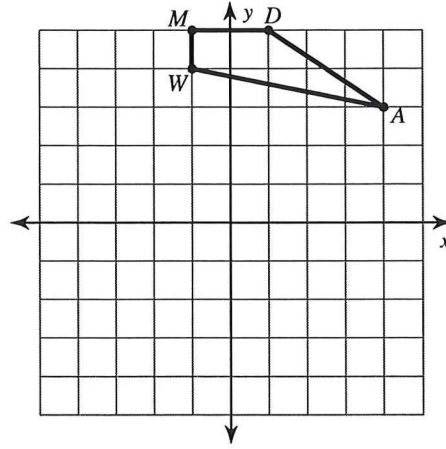8) $b = \sqrt{6}$ yd, $c = 4$ yd

DAY 8

Reflections

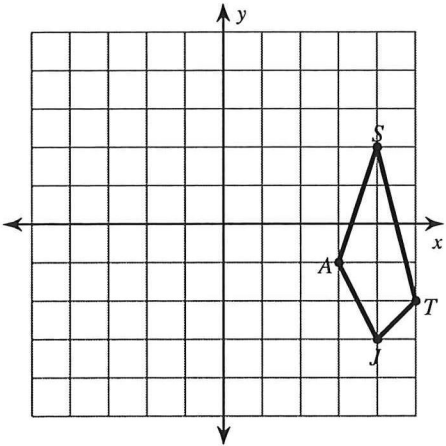**Graph the image of the figure using the transformation given.**
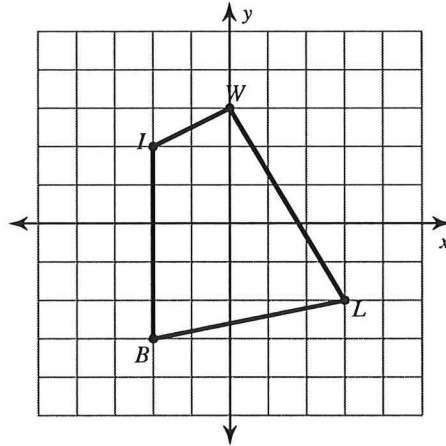
1) reflection across X-axis

2) reflection across the x-axis
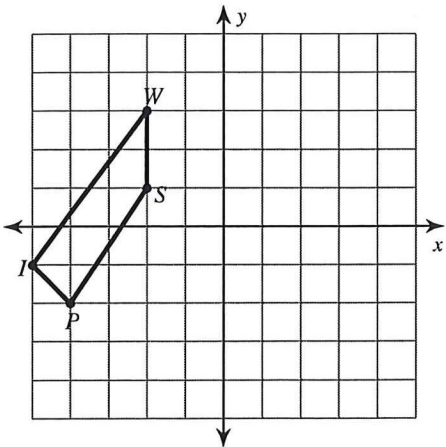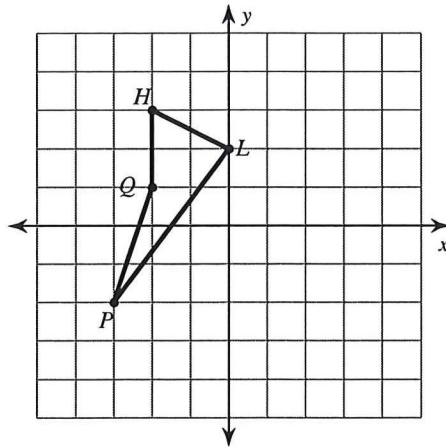

3) reflection across y-axis

4) reflection across y-axis
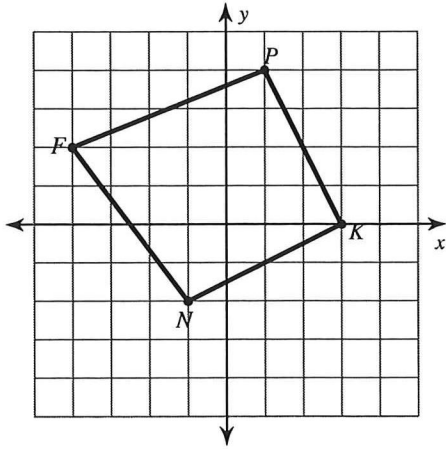

5) reflection across x-axis
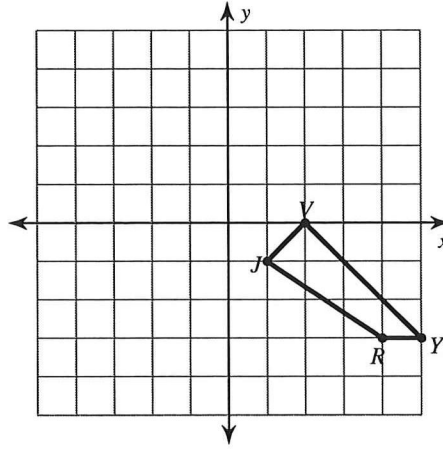

6) reflection across $y = x$

DAY 9

Rotations

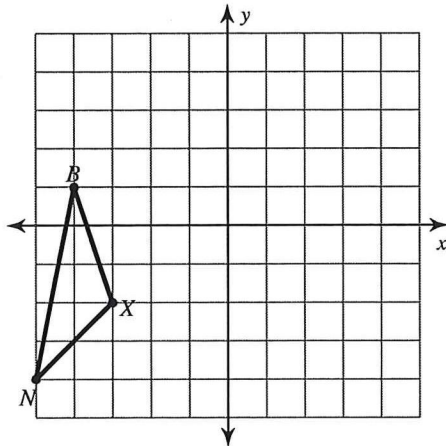## Graph the image of the figure using the transformation given.

1) rotation 180° about the origin
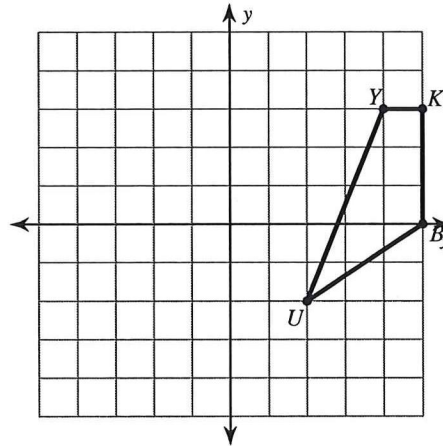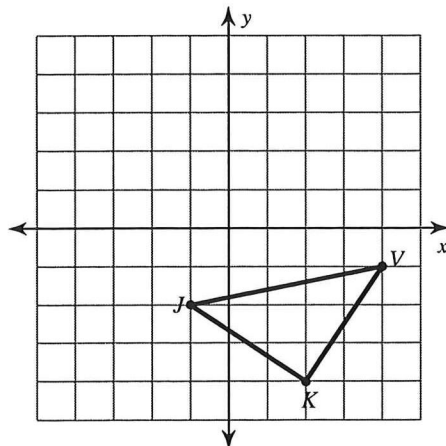

2) rotation 180° about the origin

3) rotation 90° counterclockwise about the origin

4) rotation 90° ~~clockwise~~ *Counter* clockwise about the origin

5) rotation 90° ~~clockwise~~ *Counter* clockwise about the origin

6) rotation 180° about the origin

DAY 10