

p. 479, # 1-15 (skip #13 & #14)

1.  $l: m = 1/5$

2.  $m: m = \frac{-2}{1}$

3.  $n: m = \frac{-1}{4}$

4. x-axis:  $m = 0$

5.  $\frac{y}{9} = \frac{12}{9}$

$9y = 72$   
 $y = 8$

6.  $\frac{16}{24} = \frac{20}{t}$

$16t = 480$   
 $t = 30$

7.  $\frac{x-2}{4} = \frac{9}{x-2}$

$(x-2)^2 = 36$

$x-2 = \pm 6$

$x-2 = 6$      $x-2 = -6$

$x = 8$

$x = -4$

8.  $\frac{2}{3y} = \frac{y}{24}$

$48 = 3y^2$

$16 = y^2$

$y = \pm 4$

9.  $\frac{\text{model}}{\text{actual}} \Rightarrow \frac{0.8}{240} = \frac{1.4}{x}$

$0.8x = 336$

$x = 420 \text{ m}$

10. Rectangles ABCD & WXYZ

$\left. \begin{array}{l} \angle A \cong \angle W \\ \angle B \cong \angle X \\ \angle D \cong \angle Z \\ \angle C \cong \angle Y \end{array} \right\} 90^\circ$

$\frac{64}{96} = \frac{30}{50} = \frac{64}{96} = \frac{30}{50}$

$\frac{2}{3} \neq \frac{3}{5} \neq \frac{2}{3} \neq \frac{3}{5}$

X

Not similar  $\Rightarrow$   
 Sides are not  
 proportional!

11. Yes, by AA similarity

$\angle N \cong \angle J$

$\angle P \cong \angle M$

$\Delta JMR \sim \Delta NPK$

$\frac{26}{39} = \frac{24}{36} = \frac{10}{15}$

similarity  
 ratio

$\frac{2}{3} = \frac{2}{3} = \frac{2}{3}$

12.  $\frac{\text{actual}}{\text{magnet}} \Rightarrow \frac{30}{x} = \frac{21}{3.5}$

$21x = 105$

$x = 5 \text{ cm}$



1.  $\int \frac{1}{x^2} dx = -\frac{1}{x} + C$

2.  $\int \frac{1}{x^3} dx = -\frac{1}{2x^2} + C$

3.  $\int \frac{1}{x^4} dx = -\frac{1}{3x^3} + C$

4.  $\int \frac{1}{x^5} dx = -\frac{1}{4x^4} + C$

5.  $\int \frac{1}{x^6} dx = -\frac{1}{5x^5} + C$

6.  $\int \frac{1}{x^7} dx = -\frac{1}{6x^6} + C$

7.  $\int \frac{1}{x^8} dx = -\frac{1}{7x^7} + C$

8.  $\int \frac{1}{x^9} dx = -\frac{1}{8x^8} + C$

9.  $\int \frac{1}{x^{10}} dx = -\frac{1}{9x^9} + C$

10.  $\int \frac{1}{x^{11}} dx = -\frac{1}{10x^{10}} + C$

11.  $\int \frac{1}{x^{12}} dx = -\frac{1}{11x^{11}} + C$

12.  $\int \frac{1}{x^{13}} dx = -\frac{1}{12x^{12}} + C$

13.  $\int \frac{1}{x^{14}} dx = -\frac{1}{13x^{13}} + C$

14.  $\int \frac{1}{x^{15}} dx = -\frac{1}{14x^{14}} + C$

15.  $\int \frac{1}{x^{16}} dx = -\frac{1}{15x^{15}} + C$

16.  $\int \frac{1}{x^{17}} dx = -\frac{1}{16x^{16}} + C$

17.  $\int \frac{1}{x^{18}} dx = -\frac{1}{17x^{17}} + C$

18.  $\int \frac{1}{x^{19}} dx = -\frac{1}{18x^{18}} + C$

19.  $\int \frac{1}{x^{20}} dx = -\frac{1}{19x^{19}} + C$

20.  $\int \frac{1}{x^{21}} dx = -\frac{1}{20x^{20}} + C$

21.  $\int \frac{1}{x^{22}} dx = -\frac{1}{21x^{21}} + C$

22.  $\int \frac{1}{x^{23}} dx = -\frac{1}{22x^{22}} + C$

23.  $\int \frac{1}{x^{24}} dx = -\frac{1}{23x^{23}} + C$

24.  $\int \frac{1}{x^{25}} dx = -\frac{1}{24x^{24}} + C$

25.  $\int \frac{1}{x^{26}} dx = -\frac{1}{25x^{25}} + C$

26.  $\int \frac{1}{x^{27}} dx = -\frac{1}{26x^{26}} + C$

27.  $\int \frac{1}{x^{28}} dx = -\frac{1}{27x^{27}} + C$

28.  $\int \frac{1}{x^{29}} dx = -\frac{1}{28x^{28}} + C$

29.  $\int \frac{1}{x^{30}} dx = -\frac{1}{29x^{29}} + C$

30.  $\int \frac{1}{x^{31}} dx = -\frac{1}{30x^{30}} + C$

31.  $\int \frac{1}{x^{32}} dx = -\frac{1}{31x^{31}} + C$

32.  $\int \frac{1}{x^{33}} dx = -\frac{1}{32x^{32}} + C$

33.  $\int \frac{1}{x^{34}} dx = -\frac{1}{33x^{33}} + C$

34.  $\int \frac{1}{x^{35}} dx = -\frac{1}{34x^{34}} + C$

35.  $\int \frac{1}{x^{36}} dx = -\frac{1}{35x^{35}} + C$

36.  $\int \frac{1}{x^{37}} dx = -\frac{1}{36x^{36}} + C$

37.  $\int \frac{1}{x^{38}} dx = -\frac{1}{37x^{37}} + C$

38.  $\int \frac{1}{x^{39}} dx = -\frac{1}{38x^{38}} + C$

39.  $\int \frac{1}{x^{40}} dx = -\frac{1}{39x^{39}} + C$

39.  $\int \frac{1}{x^{41}} dx = -\frac{1}{40x^{40}} + C$

40.  $\int \frac{1}{x^{42}} dx = -\frac{1}{41x^{41}} + C$

40.  $\int \frac{1}{x^{43}} dx = -\frac{1}{42x^{42}} + C$

41.  $\int \frac{1}{x^{44}} dx = -\frac{1}{43x^{43}} + C$

41.  $\int \frac{1}{x^{45}} dx = -\frac{1}{44x^{44}} + C$

42.  $\int \frac{1}{x^{46}} dx = -\frac{1}{45x^{45}} + C$

42.  $\int \frac{1}{x^{47}} dx = -\frac{1}{46x^{46}} + C$

43.  $\int \frac{1}{x^{48}} dx = -\frac{1}{47x^{47}} + C$

43.  $\int \frac{1}{x^{49}} dx = -\frac{1}{48x^{48}} + C$

43.  $\int \frac{1}{x^{50}} dx = -\frac{1}{49x^{49}} + C$

44.  $\int \frac{1}{x^{51}} dx = -\frac{1}{50x^{50}} + C$

44.  $\int \frac{1}{x^{52}} dx = -\frac{1}{51x^{51}} + C$

44.  $\int \frac{1}{x^{53}} dx = -\frac{1}{52x^{52}} + C$

45.  $\int \frac{1}{x^{54}} dx = -\frac{1}{53x^{53}} + C$

45.  $\int \frac{1}{x^{55}} dx = -\frac{1}{54x^{54}} + C$

45.  $\int \frac{1}{x^{56}} dx = -\frac{1}{55x^{55}} + C$

46.  $\int \frac{1}{x^{57}} dx = -\frac{1}{56x^{56}} + C$

46.  $\int \frac{1}{x^{58}} dx = -\frac{1}{57x^{57}} + C$

46.  $\int \frac{1}{x^{59}} dx = -\frac{1}{58x^{58}} + C$

47.  $\int \frac{1}{x^{60}} dx = -\frac{1}{59x^{59}} + C$

47.  $\int \frac{1}{x^{61}} dx = -\frac{1}{60x^{60}} + C$

47.  $\int \frac{1}{x^{62}} dx = -\frac{1}{61x^{61}} + C$

48.  $\int \frac{1}{x^{63}} dx = -\frac{1}{62x^{62}} + C$

48.  $\int \frac{1}{x^{64}} dx = -\frac{1}{63x^{63}} + C$

48.  $\int \frac{1}{x^{65}} dx = -\frac{1}{64x^{64}} + C$

49.  $\int \frac{1}{x^{66}} dx = -\frac{1}{65x^{65}} + C$

49.  $\int \frac{1}{x^{67}} dx = -\frac{1}{66x^{66}} + C$

49.  $\int \frac{1}{x^{68}} dx = -\frac{1}{67x^{67}} + C$

50.  $\int \frac{1}{x^{69}} dx = -\frac{1}{68x^{68}} + C$

50.  $\int \frac{1}{x^{70}} dx = -\frac{1}{69x^{69}} + C$

50.  $\int \frac{1}{x^{71}} dx = -\frac{1}{70x^{70}} + C$

51.  $\int \frac{1}{x^{72}} dx = -\frac{1}{71x^{71}} + C$

51.  $\int \frac{1}{x^{73}} dx = -\frac{1}{72x^{72}} + C$

51.  $\int \frac{1}{x^{74}} dx = -\frac{1}{73x^{73}} + C$

52.  $\int \frac{1}{x^{75}} dx = -\frac{1}{74x^{74}} + C$

52.  $\int \frac{1}{x^{76}} dx = -\frac{1}{75x^{75}} + C$

52.  $\int \frac{1}{x^{77}} dx = -\frac{1}{76x^{76}} + C$

53.  $\int \frac{1}{x^{78}} dx = -\frac{1}{77x^{77}} + C$

53.  $\int \frac{1}{x^{79}} dx = -\frac{1}{78x^{78}} + C$

53.  $\int \frac{1}{x^{80}} dx = -\frac{1}{79x^{79}} + C$

54.  $\int \frac{1}{x^{81}} dx = -\frac{1}{80x^{80}} + C$

54.  $\int \frac{1}{x^{82}} dx = -\frac{1}{81x^{81}} + C$

54.  $\int \frac{1}{x^{83}} dx = -\frac{1}{82x^{82}} + C$

55.  $\int \frac{1}{x^{84}} dx = -\frac{1}{83x^{83}} + C$

55.  $\int \frac{1}{x^{85}} dx = -\frac{1}{84x^{84}} + C$

55.  $\int \frac{1}{x^{86}} dx = -\frac{1}{85x^{85}} + C$

56.  $\int \frac{1}{x^{87}} dx = -\frac{1}{86x^{86}} + C$

56.  $\int \frac{1}{x^{88}} dx = -\frac{1}{87x^{87}} + C$

56.  $\int \frac{1}{x^{89}} dx = -\frac{1}{88x^{88}} + C$

57.  $\int \frac{1}{x^{90}} dx = -\frac{1}{89x^{89}} + C$

57.  $\int \frac{1}{x^{91}} dx = -\frac{1}{90x^{90}} + C$

57.  $\int \frac{1}{x^{92}} dx = -\frac{1}{91x^{91}} + C$

58.  $\int \frac{1}{x^{93}} dx = -\frac{1}{92x^{92}} + C$

58.  $\int \frac{1}{x^{94}} dx = -\frac{1}{93x^{93}} + C$

58.  $\int \frac{1}{x^{95}} dx = -\frac{1}{94x^{94}} + C$

59.  $\int \frac{1}{x^{96}} dx = -\frac{1}{95x^{95}} + C$

59.  $\int \frac{1}{x^{97}} dx = -\frac{1}{96x^{96}} + C$

59.  $\int \frac{1}{x^{98}} dx = -\frac{1}{97x^{97}} + C$

60.  $\int \frac{1}{x^{99}} dx = -\frac{1}{98x^{98}} + C$

60.  $\int \frac{1}{x^{100}} dx = -\frac{1}{99x^{99}} + C$

# Ch. 7 (7.1-7.3) Review Problems

p. 504-505, #5-17

5)  $(2, 3) (-3, 2)$

$$m = \frac{2-3}{-3-2} = \frac{-1}{-5} = \frac{1}{5}$$

6)  $(3, -3) (-3, 0)$

$$m = \frac{0-(-3)}{-3-3} = \frac{3}{-6} = -\frac{1}{2}$$

7)  $(-4, -3) (0, 3)$

$$m = \frac{3-(-3)}{0-(-4)} = \frac{6}{4} = \frac{3}{2}$$

8)  $3x + 5x + 6x = 84$

$$14x = 84$$

$$x = 6$$

$$3(6) = 18 \rightarrow \text{smallest}$$

$$6(6) = 36 \rightarrow \text{largest}$$

9)  $7x + 12x + 7x + 12x = 95$

$$38x = 95$$

$$x = 2.5$$

$$17.5 \text{ and } 30$$

10)  $\frac{y}{7} = \frac{9}{3}$

$$3y = 63$$

$$y = 21$$

11)  $\frac{10}{4} = \frac{25}{5}$

$$10s = 100$$

$$s = 10$$

12)  $\frac{x}{4} = \frac{9}{x}$

$$x^2 = 36$$

$$x = \pm 6$$

13)  $\frac{4}{z-1} = \frac{z-1}{36}$

$$144 = z^2 - 2z + 1$$

$$0 = z^2 - 2z - 143$$

$$0 = (z-13)(z+11)$$

$$z = -11, 13$$

14)  $\frac{12}{2x} = \frac{3x}{32}$

$$6x^2 = 384$$

$$x^2 = 64$$

$$x = \pm 8$$

15)  $\frac{y+1}{24} = \frac{2}{3(y+1)}$

$$3(y+5)(y-3) = 0$$

$$y = -5, 3$$

$$(y+1)(3y+3) = 48$$

$$3y^2 + 3y + 3y + 3 = 48$$

$$3y^2 + 6y - 45 = 0$$

$$3(y^2 + 2y - 15) = 0$$



16)

Angles

$$\left. \begin{array}{l} \angle J \cong \angle P \\ \angle K \cong \angle Q \\ \angle L \cong \angle R \\ \angle M \cong \angle S \end{array} \right\} \begin{array}{l} 90^\circ \checkmark \\ \text{(Rect.)} \end{array}$$

Sides

$$\frac{8}{4.8} = \frac{5}{3} = \frac{8}{4.8} = \frac{5}{3} \rightarrow \frac{5}{3} \checkmark$$

Sim. ratio:  $\frac{5}{3}$  (or  $\frac{3}{5}$ )Sim statement:  $\text{Rect JKLM} \sim \text{Rect PQRS}$ 

17)

Angles

$$\left. \begin{array}{l} \angle U \cong \angle X \text{ (given)} \\ \angle V \cong \angle Y \text{ (given)} \checkmark \\ \angle T \cong \angle W \text{ (3rd } \angle \text{ Thm)} \end{array} \right\}$$

Sides

$$\frac{12}{6} = \frac{20}{10} = \frac{24}{12} \rightarrow \frac{2}{1} \checkmark$$

Sim. ratio:  $\frac{2}{1}$  (or  $\frac{1}{2}$ ) can just show this since they are trianglesSim. statement:  $\Delta UVT \sim \Delta XYW$  (SSS similarity)p. 508, #1-4

1)  $A(-6, 4) \quad B(10, -6)$

$$m = \frac{-6-4}{10-(-6)} = \frac{-10}{16} = -\frac{5}{8}$$

2)  $\frac{L}{W} \rightarrow \frac{5}{3.5} = \frac{8}{x}$

$5x = 28$

$x = 5.6 \text{ in.}$

3)  $\frac{40}{60} = \frac{54}{81} = \frac{66}{99}$

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ \frac{2}{3} & = & \frac{2}{3} = \frac{2}{3} \checkmark \end{array}$$

Yes, By SSS.Sim ratio:  $\frac{2}{3}$  or  $\frac{3}{2}$ Sim statement:  $\Delta ABC \sim \Delta MNP$ 

4)

Angles

$$\left. \begin{array}{l} \angle D \cong \angle H \\ \angle E \cong \angle J \\ \angle F \cong \angle K \\ \angle G \cong \angle L \end{array} \right\} \begin{array}{l} 90^\circ \\ \text{(Rect.)} \end{array}$$

Sides

$$\frac{55}{22} = \frac{40}{16} = \frac{55}{22} = \frac{40}{16}$$

$$\downarrow \frac{5}{2} = \downarrow \frac{5}{2} = \frac{5}{2} = \frac{5}{2}$$

Yes!

Sim ratio:  $\frac{5}{2}$  or  $\frac{2}{5}$ Sim. stat:  $\text{Rect DEFG} \sim \text{Rect HJKL}$

p. 316, # 4-19!

4)  $2x + 4x + 5x + 6x = 85$

$$17x = 85$$

$$x = 5$$

10 inches

5)  $3x + 10x + 12x = 180$

$$25x = 180$$

$$x = 7.2$$

21.6°, 72°, 86.4°

6)  $\frac{x}{5} = \frac{6}{20}$

$$20x = 30$$

$$x = \frac{3}{2}$$

7)  $\frac{x+5}{4} = \frac{9}{x+5}$

$$36 = x^2 + 10x + 25$$

$$0 = x^2 + 10x - 11$$

$$0 = (x+11)(x-1)$$

$$x = -11, 1$$

8)  $\frac{21}{9} = \frac{x}{6}$

$$126 = 9x$$

$$x = 14$$

9)  $3x = 12y$      $x:y?$

$$\frac{x}{y} = \frac{12}{3} \rightarrow \frac{4}{1}$$

10)  $\begin{matrix} \angle A \cong \angle D \\ \angle B \cong \angle E \\ \angle C \cong \angle F \end{matrix}$      $\frac{DB}{DE} = \frac{AC}{DF} = \frac{BC}{EF}$

11)  $\begin{matrix} \angle G \cong \angle N \\ \angle H \cong \angle M \\ \angle I \cong \angle L \\ \angle J \cong \angle K \end{matrix}$      $\frac{GH}{NM} = \frac{HI}{ML} = \frac{IJ}{LK} = \frac{GJ}{NK}$

12)  $\begin{matrix} \angle A \cong \angle E \\ \angle B \cong \angle F \\ \angle C \cong \angle G \\ \angle D \cong \angle H \end{matrix}$  } 90° (Rect)

$$\frac{3}{9} = \frac{2}{6} = \frac{3}{9} = \frac{2}{6} \rightarrow \frac{1}{3}$$

Similar ratio:  $\frac{1}{3}$  or  $\frac{3}{1}$

Sim statement: Rect ABCD ~ Rect EFGH



13) SSS  
similarity?  $\frac{8}{6} = \frac{5}{4} = \frac{3}{2}$  NOT Similar!  
 $\downarrow$   
 $\frac{4}{3} \neq \frac{5}{4} \neq \frac{3}{2}$

14) Yes - AA similarity  
 1)  $\angle ACD \cong \angle CAB$  ( $90^\circ$ )  
 2)  $\angle DAC \cong \angle BCA$  (alt. int.)

15) Yes - AA similarity  
 1)  $\angle RUV \cong \angle STQ$  ( $90^\circ$ )  
 2)  $\angle RVU \cong \angle STT$  (Reflexive Prop.)

16)  $\frac{17}{8.5} = \frac{8}{4} = \frac{19}{7.5}$  NOT Similar  
 $\downarrow$   
 $\frac{2}{1} = \frac{2}{1} \neq \frac{20}{15}$

17)  $\frac{30}{20} = \frac{18}{12} = \frac{15}{10}$   
 $\frac{3}{2} = \frac{3}{2} = \frac{3}{2} \checkmark$  SSS similarity

18) Similar by SAS  
 1)  $\frac{9}{3} = \frac{18}{6}$  2)  $\angle X \cong \angle A$   
 $\frac{3}{1} = \frac{3}{1} \checkmark$

BC  $\rightarrow$   $\frac{9}{3} = \frac{15}{X}$   $9X = 45$   $X = 5$  (BC = 5)

19) Similar by AA  
 1)  $\angle R \cong \angle U$  ( $90^\circ$ ) 2)  $\angle RSV \cong \angle UST$  (vertical)

TU  $\rightarrow$   $\frac{5}{10} = \frac{9}{X}$   $5X = 90$   $X = 18$  (TU = 18)