58. What is the average rate of the wind?

A) 30 mph B) 36 mph C) 38 mph D) 40 mph E) 42 mph

59. How long did the jet fly with the wind?

A) 2.25 hours B) 2.5 hours C) 2.75 hours D) 3 hours E) 3.25 hours

60. How long did the jet fly against the wind?

A) 2.25 hours B) 2.5 hours C) 2.75 hours D) 3 hours E) 3.25 hours

Solve the problem; round to the nearest tenth when necessary.

Jan can complete a project in 40 hours. Rebekah can complete the same project in 32 hours. A deadline for the project was issued so their supervisor assigned them to work together on the same project. Let x represent the number of hours it took them to complete the project together.

61. How much of the project will Jan complete every hour?

62. Write a rational expression to represent how much of the project Jan will complete in x hours.

63. How much of the project will Rebekah complete every hour?

64. Write a rational expression to represent how much of the project Rebekah will complete in x hours.

65. Write a rational expression representing Jan and Rebekah working together to complete the project.

A) $\frac{1}{40}+\frac{1}{32}=x$ B) $40x+32x=1$ C) $\frac{x}{40}+\frac{x}{32}=72$ D) $\frac{x}{40}+\frac{x}{32}=1$

66. How long will it take them to complete the project together? (Round to the tenths of an hour.)

Choices for 61-64 and 66:

A) $\frac{1}{4}$	B) $\frac{1}{5}$	C) $\frac{1}{8}$	D) $\frac{1}{32}$	E) $\frac{1}{40}$	AB) $\frac{x}{4}$
AC) $\frac{x}{5}$	AD) $\frac{x}{8}$	AE) $\frac{x}{32}$	BC) $\frac{x}{40}$	BD) $\frac{4}{5x}$	BE) $\frac{5}{4x}$
CD) 12.4 hrs	CE) 12.6 hrs	DE) 15.2 hrs	ABC) 16.3 hrs	ABD) 16.8 hrs	ABE) 17.8 hrs

Solve the problem; round to the nearest tenth when necessary.

67. Jesse can mow his yard in 1 hour and 15 minutes. If his older brother Jared mows with Jesse they can complete the yard in 30 minutes. How long does it take Jared to mow the yard by himself?

A) 45 min B) 42.5 min C) 48.2 min D) 50 min E) 43.8 min

A movie rental company charges $17.50 per month for membership and $0.50 rental fee per movie.

68. Let x represent the number of movies rented in a month. Write an expression for the total cost per month based on x number of movie rentals.

A) $17.50+0.50x$ B) $18.00x$ C) $17.50(x+0.50)$ D) $0.50(17.50+x)$

69. Write an expression that represents the cost per movie rental.

A) $\frac{17.50(x+0.50)}{x}$ B) $\frac{0.50(17.50+x)}{x}$ C) $\frac{18.00x}{0.50}$ D) $\frac{17.50+0.50x}{x}$

70. Write a rational equation to find the number of movies needed to be rented to make the cost per movie rental $1.75.

A) $\frac{0.50(17.50+x)}{x}=1.75$ B) $\frac{17.50+0.50x}{x}=1.75$

C) $\frac{18.00x}{0.50}=1.75$ D) $\frac{17.50(x+0.50)}{x}=1.75$

71. Find the number of movie rentals needed to make the cost per movie rental $1.75.

A) 12 movies B) 14 movies C) 15 movies D) 16 movies E) 18 movies

A small college had enrolled 319 female freshmen and 240 male freshmen for the upcoming semester. How many more male freshmen would need to be enrolled so that 45% of the incoming freshmen were males?

72. Let x represent the number of male freshmen that need to be enrolled. Write a rational equation to solve this problem.

A) $\frac{240+x}{559}=\frac{45}{100}$ B) $\frac{x}{559}=\frac{45}{100}$ C) $\frac{240+x}{559+x}=\frac{45}{100}$ D) $\frac{240+x}{319}=\frac{45}{100}$

73. How many more male freshmen need to be enrolled?

A) 8 males B) 12 males C) 21 males D) 38 males E) 99 males

Lesson 3.7 Solving Rational Inequalities

Find the indicated information for the inequality.

$$\frac{4}{3x}+\frac{7}{x}<\frac{5}{9}$$

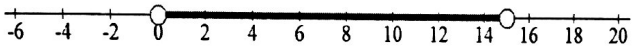
74. Identify any excluded values for x. (Select ALL excluded values for the inequality.)

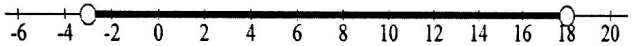
A) -3 B) 0 C) $\frac{1}{3}$ D) $-\frac{1}{3}$ E) -2

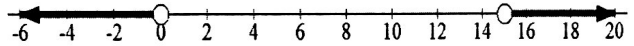
75. Write the inequality as an equation. Find the solution.

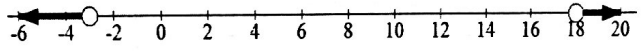
A) 13 B) 12 C) 9 D) 18 E) 15

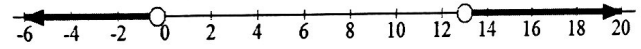
76. Divide the number line into intervals, test the intervals, and graph the solution.

A) 

B) 

C) 

D) 

E) 

77. Write the solution of the inequality.

A) $x<-3$ or $x>18$ B) $x<-\frac{1}{3}$ or $x>13$ C) $0<x<15$

D) $-3<x<18$ E) $x<0$ or $x>15$

Find the indicated information for the inequality.

$$\frac{10}{2x+1}+\frac{4}{3}>2$$

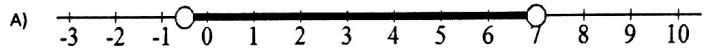
78. Identify any excluded values for x. (Select ALL excluded values for the inequality.)

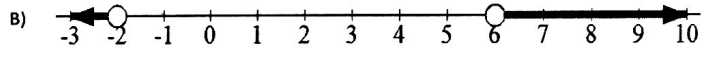
A) -2 B) -1 C) $\frac{1}{2}$ D) $-\frac{1}{2}$ E) 0

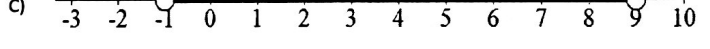
79. Write the inequality as an equation. Find the solution.

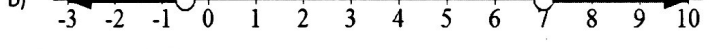
A) 3 B) 5 C) 6 D) 7 E) 9

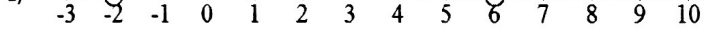
80. Divide the number line into intervals, test the intervals, and graph the solution.

A) 

B) 

C) 

D) 

E) 

81. Write the solution of the inequality.

A) $-1<x<9$ B) $-2<x<6$ C) $-\frac{1}{2}<x<7$

D) $x<-2$ or $x>6$ E) $x<-\frac{1}{2}$ or $x>7$

Find the indicated information for the inequality.

$$\frac{8}{x-5}-\frac{9}{x-4}\leq\frac{5}{x^2-9x+20}$$

82. Identify any excluded values for x. (Select ALL excluded values for the inequality.)

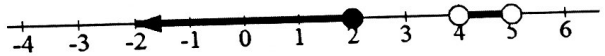
A) -5 B) -4 C) 0 D) 4 E) 5

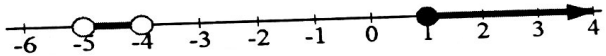
83. Write the inequality as an equation. Find the solution.

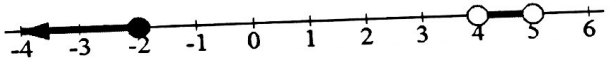
A) -2 B) 1 C) 4 D) 8 E) 12

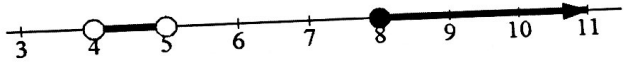
84. Divide the number line into intervals, test the intervals, and graph the solution.

A) 

B) 

C) 

D) 

E) 

85. Write the solution of the inequality.

A) $4<x<5$ or $x\geq 8$ B) $-5<x<-4$ or $x\geq -1$ C) $x\leq 2$ or $4<x<5$

D) $x\leq -2$ or $4<x<5$ E) $-5<x<-4$ or $x\geq 1$

Lesson 3.8 Graphing Reciprocal Functions

For 86-95, find the indicated information for the given function: $A(x)=\frac{1}{x-2}$.

86. *a*

87. *h*

88. *k*

Choices for 86-88:

A) 0	B) 1	C) -1	D) 2
E) -2	AB) $\frac{1}{2}$	AC) $-\frac{1}{2}$	

89. Compare $A(x)$ with the parent function $f(x)=\frac{1}{x}$ by describing the transformations. Select ALL choices that apply.

A) Reflection over the *x*-axis
B) Vertical stretch
C) Vertical shrink
D) Horizontal shift left
E) Horizontal shift right
BC) Vertical shift up
DE) Vertical shift down

90. Vertical asymptote

91. Horizontal asymptote

Choices for 90-91:

A) $x=0$	B) $x=1$	C) $x=-1$	D) $x=2$	E) $x=-2$
AB) $y=0$	AC) $y=1$	AD) $y=-1$	AE) $y=2$	BC) $y=-2$

92. Domain

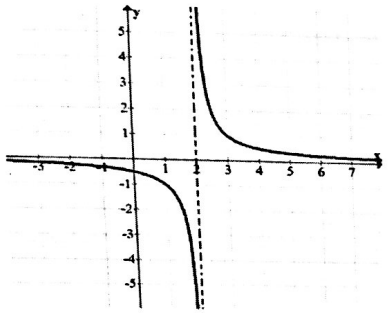
93. Range

Choices for 92-93:

A) All real numbers	B) All real numbers except 0
C) All real numbers except -1	D) All real numbers except 1
E) All real numbers except -2	AB) All real numbers except 2

94. Graph

A)



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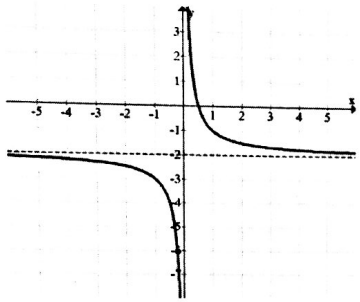

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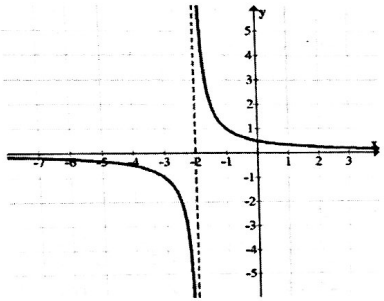
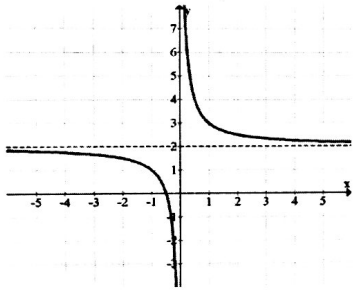


D)



95. End behavior

A) $A(x) \to -2$ as $x \to -\infty$ and $A(x) \to -2$ as $x \to +\infty$

B) $A(x) \to 2$ as $x \to -\infty$ and $A(x) \to 2$ as $x \to +\infty$

C) $A(x) \to 0$ as $x \to -\infty$ and $A(x) \to 0$ as $x \to +\infty$

D) $A(x) \to 1$ as $x \to -\infty$ and $A(x) \to 1$ as $x \to +\infty$

For 96 – 105, find the indicated information for the given function: $C(x) = \frac{1}{x+2} - 3$.

96. a

97. h

98. k

Choices for 96-98:

A) 0	B) 1	C) -1	D) 2
E) -2	AB) 3	AC) -3	

99. Compare $C(x)$ with the parent function $f(x) = \frac{1}{x}$ by describing the transformations. Select ALL choices that apply.

A) Reflection over the x-axis
B) Vertical stretch
C) Vertical shrink
D) Horizontal shift left
E) Horizontal shift right
AB) Vertical shift up
BC) Vertical shift down

100. Vertical asymptote

101. Horizontal asymptote

Choices for 100-101:

A) $x = 0$	B) $x = 1$	C) $x = -1$	D) $x = 2$	E) $x = -2$
AB) $x = 3$	AC) $x = -3$	AD) $y = 0$	AE) $y = 1$	BC) $y = -1$
BD) $y = 2$	BE) $y = -2$	CD) $y = 3$	CE) $y = -3$	DE) None

102. Domain

103. Range

Choices for 102-103:

A) All real numbers	B) All real numbers except 0
C) All real numbers except -1	D) All real numbers except 1
E) All real numbers except -2	AB) All real numbers except 2
AC) All real numbers except -3	AD) All real numbers except 3