Speed Work: Level Five

Table of Contents

Mastery Goals

Topic	# Correct to Pass	Time to Pass (Minutes)
Dividing Fractions	15	
Square Roots	15	
Areas & Perimeters	15	
Angles	5	
Factoring	11	
Reducing Polynomials	11	
Percent Problems	5	

Dividing Fractions: Level Five: 16 problems

Divide & Reduce.

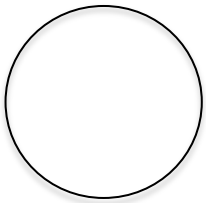
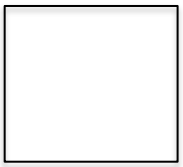
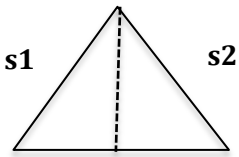
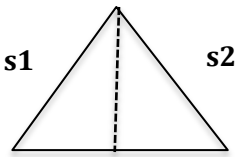
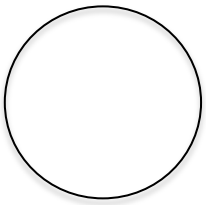
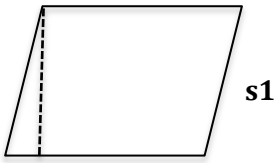
$\frac{1}{4} \div \frac{2}{3}$	$\frac{2}{5} \div \frac{2}{7}$	$\frac{3}{8} \div \frac{4}{5}$	$\frac{5}{12} \div \frac{3}{4}$
$\frac{5}{9} \div \frac{2}{11}$	$\frac{8}{9} \div \frac{3}{10}$	$\frac{6}{7} \div \frac{7}{6}$	$\frac{6}{5} \div \frac{3}{7}$
$\frac{3}{7} \div \frac{9}{4}$	$\frac{4}{7} \div \frac{6}{9}$	$\frac{4}{5} \div \frac{8}{9}$	$\frac{2}{5} \div \frac{7}{8}$
$1\frac{1}{3} \div \frac{1}{4}$	$3 \div 2\frac{1}{5}$	$\frac{1}{3} \div 4\frac{2}{5}$	$4\frac{1}{5} \div 1\frac{2}{5}$

Squares Roots: Level Five: 16 problems

$\sqrt{36}$	$\sqrt{196}$	$\sqrt{81}$	$\sqrt{9}$
$\sqrt{16}$	$\sqrt{121}$	$\sqrt{100}$	$\sqrt{64}$
$\sqrt{144}$	$\sqrt{49}$	$\sqrt{\frac{1}{9}}$	$\sqrt{169}$
$\sqrt{4}$	$\sqrt{25}$	$\sqrt{225}$	$\sqrt{\frac{1}{4}}$

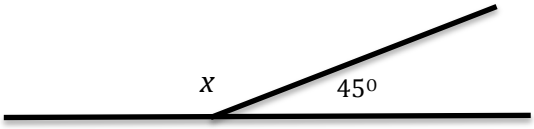
Areas & Perimeters

Level 5: 16 Problems

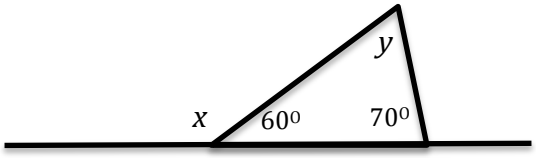
 **Circle** radius r = 3	 **Rectangle** length = 4 width = 5	 **Square** side = 6	 **s1** **s2** **Triangle** s1 = 5 s2 = 5 base = 6 height = 4
Circle Area: **Circumference:**	**Rectangle Area:** **Perimeter:**	**Square Area:** **Perimeter:**	**Triangle Area:** **Perimeter:**
 **s1** **s2** **Triangle** s1 = 13 s2 = 13 base = 10 height = 12	 **Circle** radius d = 12	 **s1** **Parallelogram** base = 12 height = 4 s1 = 5	 **Rectangle** length = 12 width = 6
Triangle Area: **Perimeter:**	**Circle Area:** **Circumference:**	**Parallelogram Area:** **Perimeter:**	**Area:** **Perimeter:**

Angles

Level 5: 6 Problems

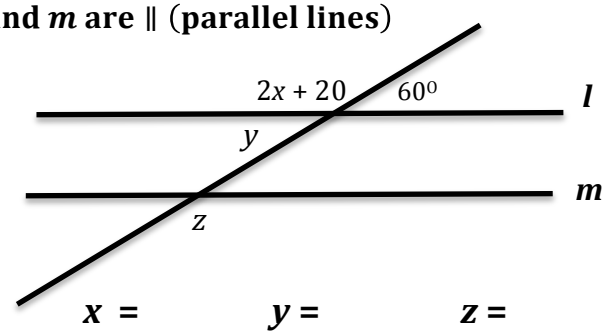


$x =$



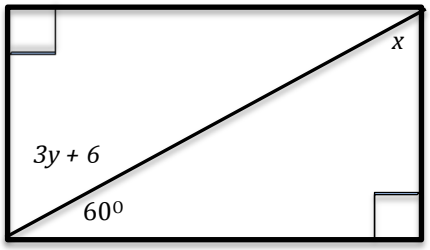
$x =$ $y =$

l and m are ∥ (parallel lines)



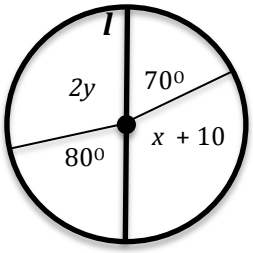
$x =$ **$y =$** **$z =$**

Rectangle



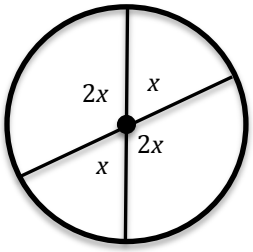
$x =$ $y =$

Circle with line l through the center



$x =$ $y =$

Circle with lines l and m through the center



$x =$

Factoring

Level 5: 12 Problems

Example: $12x + 6y = 6\,(2x + y)$			
$9x + 6y =$	$-4x + 6y =$	$3x^2 + 6x =$	$10x^2 - 5x =$
$6x^2y - 18xy =$	$-4xy^2 - 12xy =$	$-6ab - 12b =$	$8a^3b + 12a^2b^3 =$
$\frac{1}{2}x^2y - \frac{1}{4}xy =$	$\frac{1}{9}y^2z + \frac{2}{3}xz =$	$16xz + 4xy =$	$25yz - 15xy =$

Reducing Polynomials

Level 5: 12 Problems

Example: $\frac{x^3}{x^2} = x$			
$\frac{12x^4}{6x}$	$\frac{5x^3}{10x}$	$\frac{-x^2y^2}{y}$	$\frac{-xy^2}{y^3}$
$\frac{14xyz}{xz}$	$\frac{2x^{-1}y}{10xz^{-1}}$	$\frac{-12x^2y^2}{4y}$	$\frac{3x^{-3}y^{-2}}{27xz^{-1}}$
$\frac{(5^t)^4}{5^{2t}}$	$\frac{(3^2)^t}{9^{2t}}$	$\frac{(3^3)^t}{81^t}$	$\frac{(2x^t)^3}{x^{6t}}$

Percent Problems Level 5: 6 Problems

The price of boots went from $12 to $15. What was the percent change in price?	A radio that sells for $30 is discounted by 20%. What is the sale price of the radio?
The price of a train ticket was $100. The price went up 30% in June. and then went down 20% in July. What is the final price of the ticket?	The yearly rainfall dropped from 10.0 inches in 1999 to 7.5 inches in 2000. What was the percent change in rainfall from 1999 to 2000?
The price of milk went from $2.50 per gallon to $3.00 per gallon. What is the percent increase?	A set of headphones that normally costs $100 is on sale for $87.50. What is the percent discount for the headphones?

Answer Key

Level Five

Dividing Fractions			
$\frac{3}{8}$	$\frac{7}{5}$	$\frac{15}{32}$	$\frac{5}{9}$
$\frac{55}{18}$	$\frac{80}{27}$	$\frac{36}{49}$	$\frac{14}{5}$
$\frac{4}{21}$	$\frac{6}{7}$	$\frac{9}{10}$	$\frac{16}{35}$
$\frac{16}{3}$	$\frac{15}{11}$	$\frac{5}{66}$	3

Square Roots			
6	14	9	3
4	11	10	8
12	7	$\frac{1}{3}$	13
2	5	15	$\frac{1}{2}$

Areas & Perimeters			
$9\,\pi$	20	36	12
$6\,\pi$	18	24	16
60	$36\,\pi$	48	72
36	$12\,\pi$	34	36

Angles

$x = 135$	$x = 120 \quad y = 50$
$x = 50 \quad y = 60 \quad z = 120$	$x = 30 \quad y = 8$
$x = 100 \quad y = 50$	$x = 60$

Factoring

$3\,(3x + 2y)$	$2\,(-2x + 3y)$	$3x\,(x + 2)$	$5x\,(2x - 1)$
$6x\,(xy - 3y)$	$-4xy\,(y + 3)$	$-6b\,(a + 2)$	$4a^2b(2a + 3b^2)$
$\frac{1}{2}xy(x - \frac{1}{2})$	$\frac{1}{3}z\,(\frac{1}{3}y^2 + 2x)$	$4x\,(4z + y)$	$5y(5z - 3x)$

Reducing Polynomials			
$2x^3$	$\frac{1}{2}x^2$	$-x^2y$	$-\frac{x}{y}$
$14y$	$\frac{yz}{5x^2}$	$-3x^2y$	$\frac{z}{9x^4y^2}$
5^{2t}	$\frac{1}{3^{2t}} = \frac{1}{9^t}$	$\frac{1}{3^t}$	$\frac{8}{x^{3t}}$

Percent Problems	
25%	\$24.00
\$104.00	25%
20%	13.5%