Basic Math
(needed to advance from MPG 1 to MPG 2)

(1) $11.9 - 3.2 + 1.7 =$
(a) 7.0 (b) 16.8 (c) 10.4 (d) - 7.0

(2) At the deli, turkey costs $ 4.29 per pound and ham costs $ 2.99 per pound. How much does it costs to buy 2 pounds of turkey and 3 pounds of ham?
(a) $ 17.55 (b) $ 18.85 (c) $ 36.40 (d) $ 34.62

(3) A student's grades her first semester of college were one 3.5, two 3.0's, and one 2.0. What is her GPA (average grade)?
(a) 2.933 (b) 2.750 (c) 3.833 (d) 2.875

(4) If it takes a secretary 20 minutes to type 4 pages, how many pages can he type in 50 minutes?
(a) 10 (b) 11 (c) 9 (d) 12

(5) A 5-pound sack of flour sells for $ 1.29 while a 10-pound sack of flour sells for $ 2.18. To the nearest cent, how much more per pound is the 5-pound bag?
(a) 89¢ (b) 40¢ (c) 4¢ (d) 18¢

(6) The scale on the map says " $\frac{1}{2}$ inch represents 20 miles". How many miles am I from Augsburg if I'm 3 inches away on the map?
(a) 60 (b) 120 (c) 30 (d) 150

(7) Out of 15 students surveyed, only one reported liking opera. Approximately what percentage of students surveyed like opera?
(a) 15 % (b) 6.67 % (c) .067 % (d) .15 %

(8) Bus fares recently increased from 85¢ to $ 1.00. What was the approximate percentage increase?
(a) 18 % (b) 15 % (c) .15 % (d) .18 %

(9) A shirt originally sold for $ 35. Now it's on sale for "20 % off". If the sales tax is $6\frac{1}{2}$ %, what is the final price of the shirt?
(a) $ 21.50 (b) $ 29.82 (c) $ 28.00 (d) $ 29.74

(10) The number 9 is 6 % of what number?
(a) 54 (b) 15 (c) 150 (d) .54

(11) Which of the following numbers is least?
(a) - 2.5 (b) - 2.31 (c) - 3.14 (d) -3.2

(12) $4 - (5 - 7)^2 =$
(a) 64 (b) 8 (c) 36 (d) 0

(13) $\sqrt[3]{3600}$ is
(a) 180 (b) 1200 (c) 60 (d) less than 20

(14) When the fraction $\frac{125}{100}$ is reduced to its simplest form, its denominator (bottom) is
(a) 5 (b) 20 (c) 100 (d) 4

(15) Which fraction is largest?
(a) $\frac{36}{100}$ (b) $\frac{37}{99}$ (c) $\frac{37}{100}$ (d) $\frac{36}{99}$

(16) It takes $1\frac{1}{2}$ cups of sugar to make one batch of my favorite cookies. How many cups of sugar would it take to make $\frac{1}{2}$ batch?
(a) 3 (b) $1\frac{1}{4}$ (c) $\frac{3}{4}$ (d) 1

(17) $\frac{1}{2} + \frac{1}{3} + \frac{5}{6} =$
(a) $\frac{5}{3}$ (b) $\frac{7}{11}$ (c) $\frac{7}{36}$ (d) $\frac{7}{6}$

(18) In simplest form $\dfrac{3}{\frac{2}{5} - \frac{1}{10}}$
(a) 10 (b) $-\frac{45}{2}$ (c) $\frac{3}{10}$ (d) $\frac{1}{10}$

(19) When x = 2 and y = -3, $5x - 2y$
(a) 9 (b) 5 (c) 16 (d) 4

(20) If $s = \frac{t - 1}{t + 2}$ and t = 3, then s =
(a) $\frac{1}{2}$ (b) $\frac{2}{5}$ (c) $-\frac{1}{2}$ (d) $\frac{1}{3}$

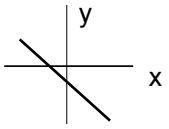
Algebra
(needed to advance from MPG 2 to MPG 3)

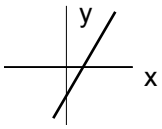
(21) In simplest form, $7x - 5(2x - 4) =$
(a) $- 3x + 20$ (b) $- 3x + 4$ (c) $- 3x - 20$ (d) $- 3x + 4$

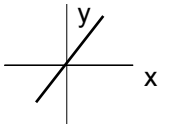
(22) Solve for x: $5(2x + 3) = 4(x + 1)$
(a) $x = - 3$ (b) $x = -\frac{11}{6}$ (c) $x = -\frac{1}{3}$ (d) $x = -\frac{6}{11}$

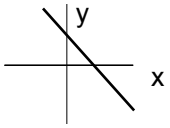
(23) Solve for t: $s = d + vt$
(a) $t = \frac{s}{dv}$ (b) $t = \frac{s-d}{v}$ (c) $t = \frac{s}{v} - d$ (d) $t = \frac{s}{d} - v$

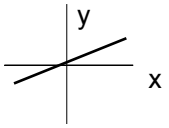
(24) Last year, the IRS audited 10,000 tax returns of which 500 were incorrect. Based on this information, how many of the 250,000,000 tax returns filed each year are probably incorrect?
(a) 500 (b) 12,500,000 (c) 12,500 (d) 125,000,000

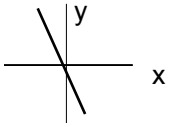
(25) The graph of $y = 3x - 2$ looks most like
(a) 

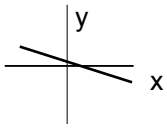
(b) 

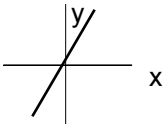
(c) 

(d) 

(26) Which of the following lines has the greatest slope?
(a) 

(b) 

(c) 

(d) 

(27) If $1 - 2x \le 3$, then
(a) $x \le - 2$ (b) $x \ge - 2$ (c) $x \le - 1$ (d) $x \ge - 1$

(28) Yesterday, I bought two cups of espresso and one biscotti for $ 4.40. This morning, I bought one cup of espresso and two biscotti for $ 3.55. What does an espresso cost?
(a) between $ 1.50 and $ 2.00 (b) under $ 1.00
(c) between $ 1.00 and $ 1.50 (d) over $ 2.00

(29) In simplest form, $\frac{-2x^2y^3}{6(xy^2)^3} =$
(a) $\frac{-x}{3y^3}$ (b) $\frac{-x}{3y^2}$ (c) $\frac{-1}{3x^2y^2}$ (d) $\frac{-1}{3xy^3}$

(30) Evaluate 9^{-2}
(a) $\frac{1}{3}$ (b) $- 18$ (c) 3 (d) $\frac{1}{81}$

(31) Evaluate $(16)^{\frac{3}{2}}$
(a) 24 (b) 2048 (c) 64 (d) 12

(32) $\frac{2.30 \times 10^5}{1.15 \times 10^{10}} =$
(a) 2.00×10^{-5} (b) 2.00 (c) $2.00 \times 10^{\frac{1}{2}}$ (d) 1.00

(33) When $x = 2$, $\frac{1 - x^4}{1 - x} =$
(a) 15 (b) 8 (c) - 16 (d) 16

(34) $(y - 8)^2 =$
(a) $y^2 - 16y - 64$ (b) $y^2 - 16y + 64$
(c) $y^2 + 64$ (d) $y^2 - 64$

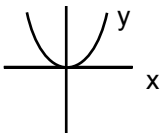
(35) Solve $2x^2 + 3x - 2 = 0$
(a) $x = -\frac{1}{2}$ and $x = 2$ (b) $x = \frac{1}{2}$ and $x = - 2$
(c) $x = - 1$ and $x = 2$ (d) $x = 1$ and $x = - 2$

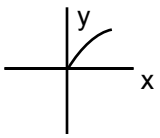
(36) In simplest form $\frac{x^2 - 2x}{x^2 - x - 2} =$
(a) - 1 (b) 1 (c) $\frac{x}{x+1}$ (d) $\frac{2x}{x+2}$

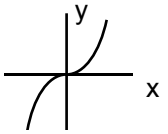
(37) $\frac{2}{x+1} - \frac{1}{x-1} =$
(a) $\frac{1}{x^2+1}$ (b) $\frac{x-2}{x^2-1}$ (c) $\frac{x-3}{x^2-1}$ (d) $\frac{x-1}{x^2-1}$

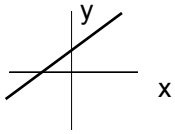
(38) In simplest form $\frac{\frac{1}{y} - \frac{1}{x}}{x - y} =$
(a) - 1 (b) $\frac{(x - y)^2}{xy}$ (c) $\frac{1}{xy}$ (d) $\frac{(x + y)^2}{xy}$

(39) In simplest form $\sqrt[3]{81x^3y^2} =$
(a) $9xy\sqrt{x}$ (b) $27xy\sqrt{x}$ (c) $27x\sqrt[3]{y^2}$ (d) $3x\sqrt[3]{3y^2}$

(40) The graph of $y = x^2$ looks most like
(a) 

(b) 

(c) 

(d) 

Precalculus
(needed to advance from MPG 3 to MPG 4)

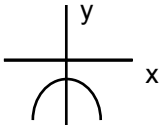
(41) If $f(x) = 4x^2$, then $f(-3) =$
(a) 144 (b) - 144 (c) - 36 (d) 36

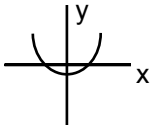
(42) If $|x + 2| < 4$, then
(a) $-6 < x < 2$ (b) $x < -2$ or $x > 2$
(c) $-2 < x < 2$ (d) $x < -6$ or $x > 2$

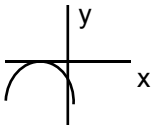
(43) Simplify $(81)^{-\frac{1}{4}}(8)^{\frac{2}{3}}$
(a) - 108 (b) $-48\sqrt{2}$ (c) $\frac{4}{3}$ (d) - 12

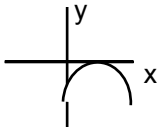
(44) Solve for x: $3x^2 - 4x - 1 = 0$
(a) $x = -13$ and $x = 1$ (b) $x = 2 \pm \sqrt{7}$
(c) $x = 13$ and $x = -1$ (d) $x = \frac{2 \pm \sqrt{7}}{3}$

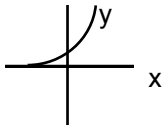
(45) Solve for t: $\sqrt{t + 5} = t - 1$
(a) $t = 3$ only (b) $t = 4$ only
(c) $t = 4$ and $t = -1$ (d) $t = 3$ and $t = -2$

(46) The graph of $y = -(x - 3)^2$ looks most like
(a) 

(b) 

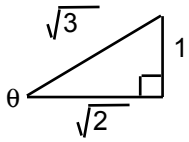
(c) 

(d) 

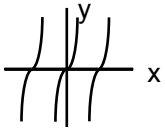
(47) Which of the following is most likely the equation of the graph drawn at the right?


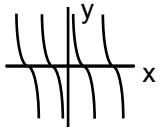
(a) $y = \log_2 x$ (b) $y = 2x$ (c) $y = 2^x$ (d) $y = x^2$

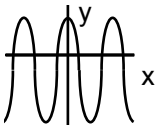
(48) $\log_2 32 =$
(a) approximately 1.204 (b) 16
(c) approximately 1.505 (d) 5

(49) If θ is the angle in the triangle drawn at the right, then $\cos \theta =$


(a) $\sqrt{\frac{2}{3}}$ (b) $\sqrt{\frac{1}{3}}$ (c) $\sqrt{\frac{1}{2}}$ (d) $\sqrt{\frac{3}{2}}$

(50) The graph of $y = \sin x$ looks most like
(a) 

(b) 

(c) 

(d)