CPTs Arithmetic Example Items

1. $3\frac{1}{2} + 4\frac{2}{3}$

- First, find the **L**east **C**ommon **D**enominator (LCD) of the fractional parts. This will allow you to add the fractional parts.

$2 \rightarrow 2, 4, (6), 8$ $\qquad$ $3 \rightarrow 3, (6), 9, 12$

- You multiply the denominator by a number that will make it equal to the LCD you just computed. Multiply by that same number to get the numerator.

$\frac{1}{2} \ \frac{x3}{x3} = \frac{3}{6}$ $\qquad$ $\frac{2}{3} \ \frac{x2}{x2} = \frac{4}{6}$

- Add the fractional parts. Notice that the result is an improper fraction (numerator is larger than denominator). It will have to be converted to a mixed number. You do this by figuring out how many times 6 (denominator) will go into 7 (numerator). It will go 1 time, AND you have 1 as a remainder. You can always check your mixed numbers by multiplying the denominator of the mixed number by the whole number and by adding the numerator of the mixed number.

CHECK: 6 x 1 + 1 = 7

$\frac{3}{6} + \frac{4}{6} = \frac{7}{6} = 1\frac{1}{6}$ $\qquad$ $1\ \frac{1}{6} \rightarrow \frac{7}{6}$

- Remember to add the whole numbers 3 and 4 to the mixed number you just computed.

$3 + 4 + 1\frac{1}{6} = \boxed{8\frac{1}{6}}$

2. $9 \times 4\frac{2}{3}$

- First convert the mixed number to an improper fraction. Multiply the denominator of the mixed number by the whole number and add the numerator of the mixed number (3 x 4 + 2 = 14 → 14/3).
- Since 9 is a whole number, it can be written as 9/1. (Any number divided by one is that number.) In the converted equation below, simply multiply the numerators by each other, then the denominators.

$\frac{9}{1} \times \frac{14}{3} = \frac{126}{3}$

- The answer above is an improper fraction that must be converted to a mixed number. See how many times 3 will go into 126. The answer is 42 with no remainder, so this answer is a simple whole number instead of a mixed number.

$126 \div 3 = 42 \text{ r } 0 = \boxed{42}$

3. $3\frac{3}{5} \div 2\frac{1}{2}$

- First convert the mixed numbers to improper fractions. Multiply the denominator of the mixed number by the whole number and add the numerator of the mixed number. (See problem 1 if you need additional assistance.)
  (5 x 3 + 3 = 18 → 18/5) (2 x 2 + 1 = 5 → 5/2)

$$\frac{18}{5} \div \frac{5}{2}$$

- Remember, division of a fraction is actually ***multiplication by the reciprocal***. You find the reciprocal by "flipping" the fraction you are dividing by. 5/2 becomes 2/5. Multiply the numerators and denominators, and convert the improper fraction to a mixed number.

$$\frac{18}{5} \times \frac{2}{5} = \frac{36}{25} = \boxed{1\frac{11}{25}}$$

4. All of the following are equivalent to 40 percent of N except:

(A) .4N (B) $\frac{40}{100}$ N (C) 40N (D) $\frac{2}{5}$ N

- Look at the answer choices and convert from decimals and fractions to percents.
  - (A) .4 Move the decimal place 2 places to the right to convert a decimal to a percent = 40% in this case.
  - (B) 40/100 Divide the fraction to convert it to a decimal. 40 ÷ 100 = .40 = 40% (same as in part "a")
  - (C) 40 Move the decimal places 2 places to the right. **4000%**
  - (D) 2/5 Divide the fraction to convert it to a decimal. 2 ÷ 5 = .40 = 40% (same as in part "a" and "b")

  SO, "C" is NOT equivalent to 40% of N.

5. .4999 x 16.00027 is approximately equal to

- The word approximately is your clue to ROUND the numbers, then multiply.
- Remember when rounding that a 0,1,2,3,or 4 in the place to the right of the place you're rounding to causes the number to stay the same. Having a 5,6,7,8, or 9 in the place to the right of the place you're rounding to causes the number to go up to the next digit.
- .4999 has a "9" beside the 4 in the tenths place, so it will "go up" to .5
- 16.00027 has a "0" beside the 6 in the ones place, so it will "stay" at 16.
  Approximate Answer: .5 x 16 = 8 (Remember .5 is "half". Half of 16 is 8.)

6. What is 40% of 85?

- Convert the percent to a decimal by moving the decimal 2 places to the left.
  .40 Now multiply: .40 x 85 = 34

7. 15 is what percent of 60?

- 60 times ? percent is 15. 60p = 15 Now, divide both sides by 60 to find out what p (the percent is). p = 15/60 = .25
- Move the decimal two places to the right. So, the answer (p) is 25%.

8. John overhauled engine – will only use 80% as much gas. Used 125 gal. last month; if he drives same number of miles next month, how many gallons of gas can he expect to save since he overhauled the carburetor?

- This is a multi-step problem. First you must find the gallons he expects to use with the new carburetor. Then, you can find out how many he expects to save.

- **WILL USE:** We know that he burned 125 gallons of gas with the old carburetor. He thinks he will only use 80% of that amount of gallons after the overhaul. Multiplication is the best choice to find out how much 80% of the 125 gallons is. Move the decimal two places to the left to convert the percent to a decimal.
  .80 x 125 = 100

- Original Usage – Expected Usage **= AMOUNT SAVED**
  125 – 100 = 25

9. 150 question test – Debra got 78% correct. How many ?'s did she miss on the test?

- This is a multi-step problem. First you must find the percentage of the questions she missed. If she'd gotten them ALL correct, she would've make 100%. Subtract the 78% from 100% to find percentage missed.
  100% - 78% = 22%

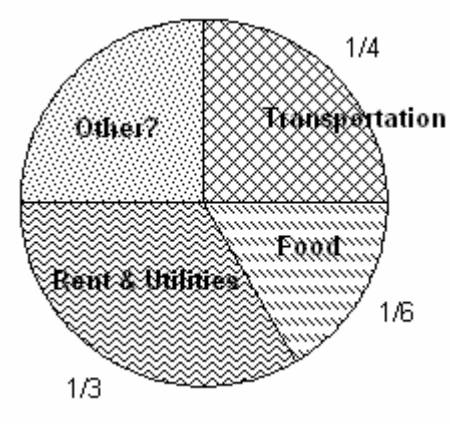
- Now you know the PERCENTAGE missed; convert this to the number of questions by multiplying 22% by the TOTAL number of questions. Remember to convert 22% to a decimal by moving the decimal 2 places to the left.
  .22 x 150 = 33 So Debra missed 33 questions.

- You can check this answer by figuring 78% of 150 to see how many she got correct. The number of correct and incorrect questions should total 150.
  .78 x 150 = 117 Correct 117 correct + 33 incorrect = 150 total

10. Sarah spends $^{1}/_{4}$ of her income for transportation, $^{1}/_{6}$ of her income for food, and $^{1}/_{3}$ of her income for rent and utilities. What fractional part of Sarah's income is left for all of her other expenses?

- Remember fractions are just "parts of a whole." The whole is always 1 (same as 100%). We'll use "1" as the whole in this case since we're dealing with fractions instead of percents.

- You are given 3 fractions of Sarah's budget. You can add up these 3 fractions to get the number you need to subtract from the whole (i.e. 1) to get the remaining fraction of the budget ("Other Expenses").
- If it helps you, draw a rough pie chart, so you can "picture" the parts of a whole.
- To add the fractions, you must find the LCD of the 3 fractions given. See problem 1 for help with the LCD.



3 → 3, 6, 9, (12), 15
4 → 4, 8, (12), 16
6 → 6, (12), 18

$\frac{1}{3} \times 4 = \frac{4}{12}$ $\frac{1}{4} \times 3 = \frac{3}{12}$ $\frac{1}{6} \times 2 = \frac{2}{12}$

- You can add the fractions since they now have like denominators. $^{9}/_{12}$ is the total of the fractional pieces we know, so we'll subtract that from 1 (the whole) to find out the fraction for Other Expenses. The number 1 must be converted to a fraction for you to be able to subtract. Any number divided by itself is always 1, so we need a fraction with 12 in the denominator to work with the $^{9}/_{12}$ we just computed → $^{12}/_{12} = 1$.

$\frac{4}{12} + \frac{3}{12} + \frac{2}{12} = \frac{9}{12}$ $\frac{12}{12} - \frac{9}{12} = \frac{3}{12}$

- Reduce $^{3}/_{12}$ to lowest terms. You arrive at lowest terms by dividing the fraction by the **G**reatest **C**ommon **F**actor (GCF) of the numerator and denominator.
  Factors of 3: 1 x (3) Factors of 12: 1 x 12, 2 x 6, (3) x 4

$\frac{3}{12} \div \frac{3}{3} = \boxed{\frac{1}{4}}$ So, Sarah spends **$^{1}/_{4}$** of her budget on **OTHER** expenses.

11. Sam & Mary each owned $^{1}/_{2}$ stock in a printing company. Sam sold $^{2}/_{5}$ of his stock to Mary. What fractional part of the business does Mary now own?

- First we need to find out what **fraction** of Sam's part (his half) that he sold. This can be done by multiplying the $^{2}/_{5}$ he sold by the $^{1}/_{2}$ he owned.

$\frac{2}{5} \times \frac{1}{2} = \frac{2}{10}$ Fraction Sam SOLD to Mary

- Remember that Mary owned $^{1}/_{2}$ of the stock. She still owns $^{1}/_{2}$ PLUS she bought the $^{2}/_{10}$ additional stock from Sam. Find the LCD (see problem 1 for LCD assistance) of Mary's 2 fractions and add them to compute her NEW total.

2 → 2, 4, 6, 8, (10) 10 → (10), 20, 30

$\frac{1}{2} \times 5 = \frac{5}{10}$ $\frac{2}{10} \times 1 = \frac{2}{10}$ $\frac{5}{10} + \frac{2}{10} = \boxed{\frac{7}{10}}$ What Mary now owns

12. Car traveled 65 mph for a total of 390 miles – How many hours did the car travel?

- Use the Distance = Rate x Time formula for this problem. You are given the distance (390) and rate (65 mph), so you need to modify the formula to find the **time.** Solve the equation algebraically for T. D = RT

- $\frac{D}{R} = \frac{RT}{R}$ (Need to get T "by itself", so divide BOTH sides by R – what you do to one side of the equation, you must also do to the other side) The R's cancel themselves out on the right side.
  You are left with T = D/R. Plug the numbers from the problem into the new formula. T = 390 / 65 = 6 hours

- You can check by plugging 6 in the original formula D = RT. D = 65 x 6 = 390

13. Area of rectangle is 126 square inches; length is 14 inches. What is the width?

- Use the Area = Length x Width formula for this problem. You are given the area (126) and length (14), so you need to modify the formula to find the **width.** Solve the equation algebraically for W. A = LW

- $\frac{A}{L} = \frac{LW}{L}$ (Need to get W "by itself", so divide BOTH sides by L – what you do to one side of the equation, you must also do to the other side) The L's cancel themselves out on the right side.
  You are left with W = A/L. Plug the numbers from the problem into the new formula. W = 126 / 14 = 9 inches

- You can check by plugging 9 in the original formula A = LW. A = 14 x 9 = 126

14. Perimeter of rectangle is 60 inches; width is 12 inches. What is the length?

- Use the Perimeter = (2 x Length) + (2 x Width) formula for this problem. You are given the perimeter (60) and width (12), so you need to modify the formula to find the **length.** Solve the equation algebraically for L.

- Need to get L "by itself", what you do to one side of the equation, you must also do to the other side

$$P = 2L + 2W$$
$$P - 2W = 2L + 2W - 2W \quad \text{(Subtract 2W from both sides.)}$$
$$\frac{P - 2W}{2} = \frac{2L}{2} \quad \text{(Divide both sides by 2. The 2's cancel.)}$$

  You are left with L = (P – 2W)/2. Plug the numbers from the problem into the new formula. L = (60 – (2 x 12)) / 2
  L = (60 – 24) / 2
  L = 36 / 2 = 18 inches

- You can check by plugging 18 in the original formula P = 2L + 2W

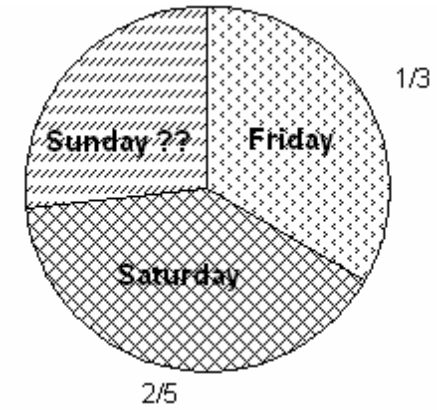
$P = (2 \times 18) + (2 \times 12) = 36 + 24 = 60$

15. Sam's budget is \$45 for weekend entertainment. Spent $^1/_3$ Fri. & $^2/_5$ Sat. How many dollars does he have left over to spend on Sun.?

- Remember fractions are just "parts of a whole." The whole is always 1 (same as 100%). We'll use "1" as the whole in this case since we're dealing with fractions instead of percents.

- You are given 2 fractions of Sam's budget. You can add up these 2 fractions to get the number you need to subtract from the whole (i.e. 1) to get the remaining fraction of the budget ("Money Left for Sunday").

- If it helps you, draw a rough pie chart, so you can "picture" the parts of a whole.
- To add the fractions, you must find the LCD of the 2 fractions given. See problem 1 for help with the LCD.



3 → 3, 6, 9, 12, (15), 18
5 → 5, 10, (15), 20

$$\frac{1}{3}\ \frac{x5}{x5} = \frac{5}{15} \qquad \frac{2}{5}\ \frac{x3}{x3} = \frac{6}{15}$$

- You can add the fractions since they now have like denominators. $^{11}/_{15}$ is the total of the 2 fractional pieces we know, so we'll subtract that from 1 (the whole) to find out the fraction for money to spend on Sunday. The number 1 must be converted to a fraction for you to be able to subtract. Any number divided by itself is always 1, so we need a fraction with 15 in the denominator to work with the $^{11}/_{15}$ we just computed → $^{15}/_{15} = 1$.

$$\frac{5}{15} + \frac{6}{15} = \frac{11}{15} \qquad \frac{15}{15} - \frac{11}{15} = \frac{4}{15}$$

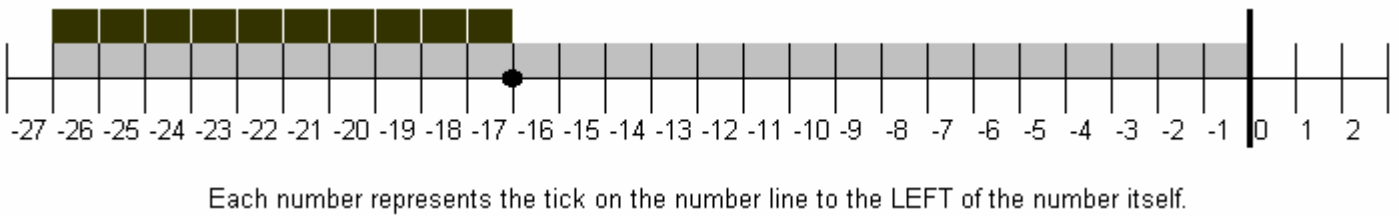
- We know the FRACTION for Sunday, but that must be converted to a DOLLAR amount. Multiply the fraction $^4/_{15}$ by \$45. Refer to problem 2 for assistance if needed.

$$\frac{4}{15} \times \frac{45}{1} = \frac{180}{15} = \boxed{\$12}$$

CPTs Elementary Algebra Example Items

1. Evaluate |-26 + 10| =

- This is an absolute value equation. You solve it just as you would any equation. Ignore the bars for this step. -26 + 10 = -16 If this type of addition gives you trouble, think of a number line. The gray squares indicate the -26. The black ones indicate the +10, and you can see that it ends up on -16.



- The absolute value bars on either side of the equation indicate that the answer will be positive! No matter what the answer is, the absolute value bars are your indicator to make the answer positive. So, -16 becomes 16.

2. Evaluate: $\dfrac{3^2 + 2^2 \cdot 5 - \sqrt{25}}{8 - 4 \div 2 + 2}$

- You must use the "Order of Operations" for solving equations to compute the correct answer for this problem.
  - Rule 1: Simplify all operations inside parentheses.
  - Rule 2: Simplify all exponents, working from left to right.
  - Rule 3: Perform all multiplications and divisions, working from left to right.
  - Rule 4: Perform all additions and subtractions, working from left to right.

  (Rules copied from: http://www.mathgoodies.com/lessons/vol7/operations_exponents.html)
- Silly phrase to help you remember the Order of Operations
  - **P**lease **e**xcuse **m**y **d**ear **a**unt **S**ally.
  - **P**arentheses **E**xponents **M**ultiplication **D**ivision **A**ddition **S**ubtraction

Exponents / Multiplication/Division / Addition/Subtraction 1

$$\frac{\textcircled{3^2} + \textcircled{2^2} \cdot 5 - \sqrt{25}}{8 - 4 \div 2 + 2} = \frac{9 + \textcircled{4 \cdot 5} - \sqrt{25}}{8 - \textcircled{4 \div 2} + 2} = \frac{\textcircled{9 + 20} - \sqrt{25}}{\textcircled{8 - 2} + 2} =$$

Addition/Subtraction 2

$$\frac{29 - 5}{6 + 2} = \frac{24}{8} = \boxed{3}$$

3. Evaluate: $-\frac{3}{5}\left\{\frac{2}{3} - \frac{1}{2}\left[\frac{3}{4} - \frac{1}{2}\right]\right\}$

- Solve innermost parentheses first. Find the LCD and subtract.

$$\frac{3}{4}\ \frac{x1}{x1} = \frac{3}{4} \qquad \frac{1}{2}\ \frac{x2}{x2} = \frac{2}{4} \qquad \frac{3}{4} - \frac{2}{4} = \frac{1}{4} \quad \Rightarrow \quad -\frac{3}{5}\left\{\frac{2}{3} - \frac{1}{2}\left[\frac{1}{4}\right]\right\}$$

- The innermost parentheses is now multiplication. Multiply ½ x ¼.

$$\frac{1}{2} \times \frac{1}{4} = \frac{1}{8} \quad \Rightarrow \quad -\frac{3}{5}\left\{\frac{2}{3} - \frac{1}{8}\right\}$$

- Solve the outer () since the innermost () have been taken care of. Find the LCD and subtract.

$$\frac{2}{3}\ \frac{x8}{x8} = \frac{16}{24} \quad \frac{1}{8}\ \frac{x3}{x3} = \frac{3}{24} \quad \frac{16}{24} - \frac{3}{24} = \frac{13}{24} \quad \Rightarrow \quad -\frac{3}{5}\left\{\frac{13}{24}\right\}$$

- Multiplication is the only operation left. Find the GCF and reduce to lowest terms.

$$-\frac{3}{5} \times \frac{13}{24} = -\frac{39}{120}\ \frac{\div 3}{\div 3} = \boxed{-\frac{13}{40}}$$

4. Factor: 15x - 3

- See if there are any numbers (or letters) that both terms (the 15x and the 3) are divisible by. We want to take this equation back to a form such as this: 2(x+1).
- Looking at this equation, the 3 can be pulled outside the (). 3(? - ?)
- Figure out what should be in place of the question marks—what times 3 will give you 15x? what times 3 will give you negative 3? $\boxed{3(5x - 1)}$
- For a better explanation of simple factoring, please visit this web site: http://www.purplemath.com/modules/simpfact.htm

5. Simplify: $(5x^2 - 2x + 5) - (2x^2 + 3x - 7)$

- **NOTE:** The minus sign in front of the 2nd set of terms will CHANGE THE SIGNS of the terms in that set of parentheses. That minus sign is the same as multiplying every term in that 2nd set of parentheses by –1.
- Combine like terms. **(Remember to "distribute" that minus sign appropriately over that 2nd group!)**

$(\boxed{5x^2} - 2x + 5) - (\boxed{2x^2} + 3x - 7) = 5x^2 - 2x^2 - 2x - 3x + 5 + 7 =$

$\boxed{3x^2 - 5x + 12}$

6. Simplify: $(-6a^2b^3)(2a^4b^2)$

- Multiply the numbers; then multiply the variables that have exponents. The rule for multiplication of exponents is to *ADD the exponents*. Think of it "in groups."

$-6(2) \quad (a^2)(a^4) \quad (b^3)(b^2) \rightarrow -12 \cdot a^{2+4} \cdot b^{3+2} = \boxed{-12a^6b^5}$

7. Simplify: $\left(\frac{2x^7y^2}{4xy^3}\right)^3$

- Simplify what's inside the brackets first by canceling out terms if possible. When canceling the terms/dividing exponents, you *SUBTRACT the exponents.* There are 2 exponents to subtract in this example: x^{7-1} AND y^{3-2} Leave the variables (x & y in this case) where the LARGER exponent was shown (x has the larger exponent on TOP and y has the larger exponent on the bottom).

$$\frac{1\ x^6\ 1}{2\ x^7\ y^2} \Rightarrow \frac{x^6}{2y}$$
$$\overline{4\ x\ y^3}$$
$$2\ 1\ y$$

- Use the simplified, "cancelled out" fraction to raise to the 3rd power as the original problem requested. This is called a "power of a power." The rule for this is to *MULTIPLY the exponents*.

$$\left(\frac{x^6}{2y}\right)^3 = \frac{x^{6\cdot 3}}{2^3 \cdot y^3} = \boxed{\frac{x^{18}}{8y^3}}$$

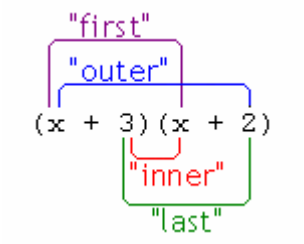
8. Simplify: $(3x - 5)(2x + 7)$

- This problem consists of (2) two-term polynomials, so the FOIL method can be used for multiplying them out.

First:	$3x(2x)$	$= 6x^2$
Outer:	$3x(7)$	$= 21x$
Inner:	$-5(2x)$	$= -10x$
Last:	$-5(7)$	$= -35$

Write it as one equation and combine like terms.

$6x^2 + 21x - 10x - 35 = \boxed{6x^2 + 11x - 35}$



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9. If $-6(2x+1) = -4x + 10$, then x =

- First of all, multiply out the left side of the equation. Then, you can work on getting the "x's" on ONE side of the equation only.

$-6(2x + 1) = -6(2x) + (-6)(1) = -12x - 6$

- The steps below will solve for "x." You need to get x "by itself."

$-12x + 12x - 6 = -4x + 12x + 10$	Add 12x to both sides.
$-6 = 8x + 10$	Combine like terms.
$-6 - 10 = 8x + 10 - 10$	Subtract 10 from both sides.
$\frac{-16}{8} = \frac{8x}{8}$	Divide both sides by 8.
$\boxed{-2 = x}$	

- Plug (-2) into the original equation to check your answer:

$-6(2 \cdot -2 + 1) = (-4)(-2) + 10$

$-6(-3) = 8 + 10 \rightarrow 18 = 18$

10. If $2x + 2 \geq 5x + 11$, then x =

- This problem will be solved similarly to the way #9 was solved. The steps below will solve for "x." You need to get x "by itself."

$2x - 5x + 2$	$\geq$	$5x - 5x + 11$	Subtract 5x from both sides.
$-3x + 2$	$\geq$	11	Combine like terms.
$-3x + 2 - 2$	$\geq$	$11 - 2$	Subtract 2 from both sides.
$\frac{-3x}{-3}$	$\geq$	$\frac{9}{-3}$	Divide both sides by −3.

IMPORTANT: Since you had to divide by a negative (negative coefficient on the variable x), you ***MUST flip the inequality sign*** around for the final answer.

$\boxed{x \leq -3}$

11. Which of the following is a linear factor of $2x^2 - x - 6$?

- Remember FOIL from problem 8? We need to factor this equation out, so that when it is multiplied using the FOIL method it will equal the equation above.
- Go here for more examples and a better explanation. http://www.purplemath.com/modules/factquad.htm
- Set up 2 sets of parentheses. We put 2x and x for $2x^2$ because there's no other way to factor that. So, that's one "piece of the puzzle." ☺ (You may be able to look at the answer choices to get some ideas.)

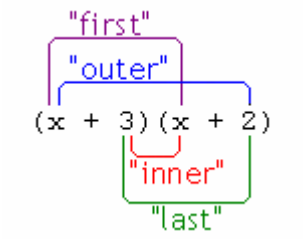
  (2x)(x)
- Now, you have to look at what other numbers you can put in those parentheses and make them FOIL out to the equation above. Let's try a 3 in the first one and a −2 in the second one. We know that 3(-2) will yield a −6, but will the "outer" and "inner" portions add up to be −x. Fill in the parentheses and FOIL. (If it doesn't work out right, try opposite signs or different numbers.)

  (2x + 3)(x − 2)

First:	2x(x)	$= 2x^2$
Outer:	2x(-2)	$= -4x$
Inner:	3(x)	$= 3x$
Last:	3(-2)	$= -6$

Write it as one equation and combine like terms.

$2x^2 - 4x + 3x - 6 = 2x^2 - x - 6$



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- So, the linear factors of $2x^2 - x - 6$ are (2x + 3)(x − 2). Look for one of these factors in the answer choices. $\boxed{2x + 3}$

12. If $x^2 - 2x - 8 = 0$, then x =

- Review the FOIL notes from problem 11.
- Choose factors that will multiply out to -8 and also yield –2x after FOIL and combination like terms. (x - 4)(x + 2)
- CHECK WITH FOIL: $x^2 + 2x - 4x - 8 = x^2 - 2x - 8$
- Now, solve each factor for zero: $x - 4 = 0$ $\quad$ $x + 2 = 0$

$x - 4 + 4 = 0 + 4$ $\quad$ $x + 2 - 2 = 0 - 2$

$\boxed{x = 4 \quad \text{or} \quad x = -2}$

13. Simplify: $\dfrac{6x^3 - 4x^2 + 10x}{2x}$

- Rewrite it as 3 separate fractions and reduce/cancel appropriately. See problem 7 for help with division of exponents.

$$\frac{6x^3}{2x} - \frac{4x^2}{2x} + \frac{10x}{2x} \quad \Rightarrow \quad \boxed{3x^2 - 2x + 5}$$

(3 x^2 ; 2 x ; 5 1 — 1 1 ; 1 1 ; 1 1)

14. Simplify: $\dfrac{x^2 - x - 6}{x^2 - 2x - 3}$

- Review the FOIL notes from problem 11. You need to factor the numerator AND denominator in order to simplify this problem.
- NUMERATOR: Choose factors that will multiply out to -6 and also yield –x after FOIL and combination like terms. (x - 3)(x + 2)
- DENOMINATOR: Choose factors that will multiply out to -3 and also yield –2x after FOIL and combination like terms. (x - 3)(x + 1)

Rewrite the equation with the factors and cancel: $\dfrac{\cancel{(x-3)}(x+2)}{\cancel{(x-3)}(x+1)} =$

$$\boxed{\frac{x+2}{x+1}}$$

15. Choose the equation that is equivalent to the verbal description:
The difference between a number, x, and five less than twice the number is 9.

- Key words: difference = subtraction, five less = subtraction, twice the number = multiplication; you know it's all equal to 9
- $x \quad - \quad (2x - 5) \quad = \quad 9$

The difference between a number, x, and five less than twice the number is 9.

$$\boxed{x - (2x - 5) = 9}$$

COMPUTERIZED PLACEMENT TEST - MATH RESOURCES

Here are some resources for each problem on this practice test. The staff in the Guided Studies Center will be happy to help you locate these resources.

ARITHMETIC

No.	Topic	Resources
1	Adding Mixed Numbers	❑ Contemporary's Fractions Booklet (pages 6, 7, & 11) ❑ http://www.purplemath.com/modules/fraction4.htm ❑ http://www.purplemath.com/modules/fraction2.htm
2	Multiplying Mixed Numbers	❑ Contemporary's Fractions Booklet (page 21) ❑ http://www.purplemath.com/modules/fraction2.htm ❑ http://www.purplemath.com/modules/fraction3.htm
3	Dividing Mixed Numbers	❑ Contemporary's Fractions Booklet (pages 24 & 26) ❑ http://www.purplemath.com/modules/fraction2.htm ❑ http://www.purplemath.com/modules/fraction3.htm
4	Recognizing Algebraic Expressions	❑ http://www.purplemath.com/modules/percents.htm ❑ Contemporary's Number Power 3 Book (page 38) ❑ Contemporary's Percents Booklet (page 10 – has numbers but is same concept as algebraic expressions)
5	Estimating and Multiplying Decimals	❑ Contemporary's Decimals Booklet (page 8)
6	Calculating Percentages	❑ Contemporary's Percents Booklet (page 12) ❑ http://www.themathpage.com/ARITH/percent-of-a-number.htm
7	Calculating Percentages	❑ Contemporary's Percents Booklet (page 14) ❑ http://www.themathpage.com/ARITH/what-percent.htm
8	Calculating Percentages	❑ Contemporary's Percents Booklet (page 21 #6)
9	Calculating Percentages	❑ Contemporary's Percents Booklet (page 20 & 21) ❑ http://www.themathpage.com/ARITH/percent-of-a-number.htm
10	Fractions: Parts of a Whole	❑ Contemporary's Fractions Booklet (page 9 for LCD and adding; page 16 for regrouping and subtracting)
11	Fractions: "Fraction of a Fraction"	❑ Contemporary's Fractions Booklet (page 19 for multiplying; page 16 for regrouping and subtracting; page 23 #1)
12	Distance = Rate x Time	❑ Contemporary's Decimals Booklet (page 29 #20 & page 24 #5) ❑ http://www.innvista.com/science/math/basics/distrtim.htm
13	Area of Rectangle (Solve for Width)	❑ Contemporary's Geometry Booklet (page 22 & page 23 #10)
14	Perimeter of Rectangle (Solve for Length)	❑ Contemporary's Geometry Booklet (page 20) ❑ Contemporary's GED Math Test 5 Book (page 243)
15	Fractions: Finding Part of a Whole	❑ Contemporary's Fractions Booklet (page 9 for LCD and adding; page 16 for regrouping and subtracting; page 21 for multiplying)

COMPUTERIZED PLACEMENT TEST - MATH RESOURCES

(continued…)

ELEMENTARY ALGEBRA

No.	Topic	Resources
1	Calculating Absolute Value	❑ Contemporary's Number Power 3 Book (page 188 & 189 #2) ❑ http://www.purplemath.com/modules/absolute.htm
2	Order of Operations	❑ Contemporary's GED Math Test 5 Book (page 47) ❑ http://www.mathgoodies.com/lessons/vol7/operations_exponents.html
3	Order of Operations (Fractions)	❑ Contemporary's GED Math Test 5 Book (page 47) ❑ Contemporary's Fractions Booklet (page 9 for LCD; page 14 for subtracting; page 19 for multiplying) ❑ http://www.purplemath.com/modules/orderops.htm
4	Factoring Simple Equation (Pull Out Common Terms)	❑ Contemporary's Number Power 3 Book (page 146) ❑ http://www.purplemath.com/modules/simpfact.htm
5	Simplifying Polynomial Equation	❑ Contemporary's Number Power 3 Book (page 132 & 133 #6) ❑ http://www.purplemath.com/modules/polydefs.htm ❑ http://www.purplemath.com/modules/polyadd2.htm
6	Multiplying Polynomials: One Term	❑ Contemporary's Number Power 3 Book (page 134 #4) ❑ http://www.purplemath.com/modules/polymult.htm
7	Algebraic Fraction: Power of a Power	❑ http://www.themathpage.com/alg/exponents.htm (Rule 3) ❑ Canceling terms: http://www.purplemath.com/modules/polydiv.htm ❑ Contemporary's Number Power 3 Book (page 138 #3) ❑ Contemporary's GED Math Test 5 Book (page 293)
8	Multiplying Polynomials: Multi-Term	❑ Contemporary's Number Power 3 Book (page 136 #2) ❑ http://www.purplemath.com/modules/polymult2.htm
9	Solving Linear Equation	❑ http://www.purplemath.com/modules/solvelin2.htm ❑ Contemporary's Pre-Algebra folder (page 12 & page 13 #5)
10	Solving Linear Inequality	❑ http://www.purplemath.com/modules/ineqlin3.htm ❑ Contemporary's GED Math Test 5 Book (page 291) ❑ Contemporary's Number Power 3 Book (page 119 – x's on ONE side)
11	Factoring Quadratic Equation	❑ http://www.purplemath.com/modules/factquad.htm
12	Solving Quadratic Equation	❑ http://www.purplemath.com/modules/solvquad.htm
13	Dividing Polynomials	❑ http://www.purplemath.com/modules/polydiv.htm ❑ Contemporary's Number Power 3 Book (page 138)
14	Dividing Polynomials	❑ http://www.purplemath.com/modules/polydiv3.htm (TOP example)
15	Writing Algebraic Equations	❑ Contemporary's Number Power 3 Book (page 38-39) ❑ http://www.mathgoodies.com/lessons/vol7/equations.html