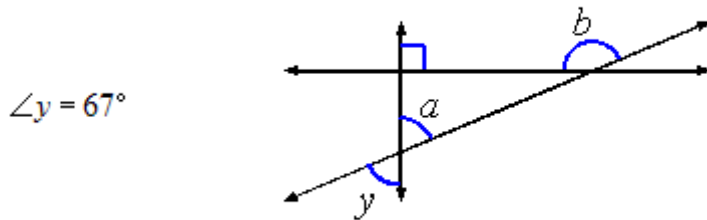


**Directions:** You have 90 minutes to complete this exam. There are 20 questions. Each question is worth 5 points. (There is no partial credit on multiple choice questions). Partial credit is rare, but possible; so please show your work. Write your answers clearly, and use the space provided for the answer! **Numerical answer precision required (if applicable) is 2 decimals.**

For problems 1 - 5, write the **letter** of the correct answer in the space provided. Only one answer is correct.

- \_\_\_ 1. Given the measure of angle  $y$  below, find the measure of angle  $b$ .



- A)  $157^\circ$  B)  $123^\circ$  C)  $137^\circ$  D)  $113^\circ$  E)  $67^\circ$

- \_\_\_ 2. **Grading.** To pass a course with a B grade, a student must have an average of 78 points on five tests. The student's grades on the first four tests were 75, 82, 89, and 80.

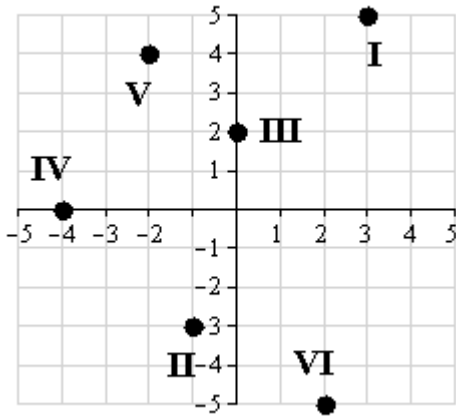
What score can the student receive on the fifth test to earn a B grade?

- A)  $>67$  B)  $\geq 64$  C)  $<64$  D)  $<63$  E)  $\geq 66$

- \_\_\_ 3. A sub-Saharan weather station reports at 7 A.M. a humidity level of 63 percent. At 2 P.M. on the same day, the humidity was 91 percent. Find the average rate of change in humidity per hour.

- A)  $\frac{1}{4}$  percent/hr B)  $\frac{1}{5}$  percent/hr C) 4 percent/hr D)  $\frac{28}{5}$  percent/hr E) 5 percent/hr

\_\_\_ 4. Find the coordinates of the point labeled **IV**.



- A)  $(2, -5)$    B)  $(-1, -3)$    C)  $(3, 5)$    D)  $(-4, 0)$    E)  $(-2, 4)$

\_\_\_ 5. A bank contains 28 coins in dimes and quarters. The coins have a total value of \$5.35. Find the number of dimes and quarters in the bank.

- A) 6 dimes; 19 quarters                                  D) 16 dimes; 15 quarters  
 B) 26 dimes; 11 quarters                                 E) 11 dimes; 17 quarters  
 C) 13 dimes; 15 quarters

6. **Comparing Services.** EZ&Z, a cell phone service provider, has a data plan that charges a flat fee of \$14 per month. At the same time, an alternative data plan charges a fee of \$3 per month plus \$0.20 for each MB used.

How many MBs must a person use the alternative plan to exceed \$14?

7. The price of a pair of skis at the Solitude Ski Shop is \$432. This price includes the store's cost for the skis plus a markup at the rate of 20%. Find Solitude's cost for the skis.

8. Concrete Ideas sells concrete for \$24 for each cubic yard of concrete plus a \$75 delivery charge. How many cubic yards of concrete can be purchased for \$435?
9. In an isosceles triangle, the length of one of the equal sides is three times the length of the third side. The perimeter is 21 ft. Find the length of the third side.
10. Find three consecutive even integers whose sum is negative sixty.
11. An tablet computer, normally selling for \$140, is on sale for 10% off the regular price. Find the sale price.

12. An specialty platinum alloy is made by mixing an alloy that has 18% platinum with one that has 15% platinum.

How many ounces of the 15% alloy are used to make 10 oz of the specialty alloy that is 16.2% platinum?

13. Write the following problem as an equation and solve.

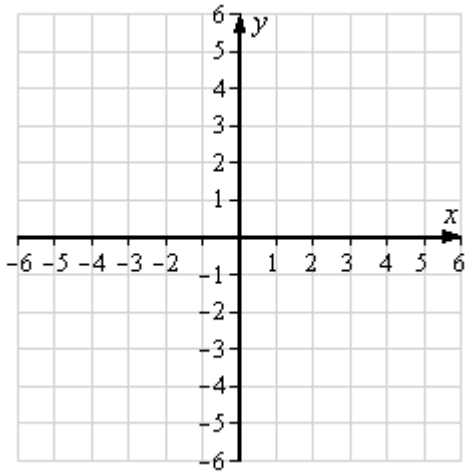
7 less than one-eighth of a number is 5.

14. A 672.5-mile, 5.5 hour plane trip was flown at two speeds. For the first part of the trip, the average speed was 120 mph. For the remainder of the trip, the average speed was 125 mph.

How long did the plane fly at 120 mph?

15. Graph by using  $x$ - and  $y$ -intercepts.

$$5x + 4y = 20$$



16. At 10 A.M. a plane leaves Boston, Massachusetts, for Seattle, Washington, a distance of 3000 mi. One hour later a plane leaves Seattle for Boston. Both planes are traveling at a speed of 400 mph.

How many hours after the plane leaves Seattle will the planes pass each other?

17. Christopher Duncan invested a portion of \$12,000 in a money-market account earning 7% annual simple interest and the remainder in a retirement account at 7.5% annual simple interest. The two investments earn \$875 in interest annually. How much was invested in each account?

18. How many ounces of pure bran flakes must be added to 70 oz of cereal that is 42% bran flakes to produce a mixture that is 59.4% bran flakes?
19. A drawer contains 39¢ stamps and 3¢ stamps. The number of 3¢ stamps is four less than six times the number of 39¢ stamps. The total value of all the stamps is \$3.87. How many 3¢ stamps are in the drawer?
20. An investor has a total of \$15,000 invested in two simple interest accounts. The annual simple interest rate on one account is 9%. The annual simple interest rate on the second account is 6%. How much is invested in each account if both accounts earn the same amount of interest?

## Answer Key

Version Review

1. A  
Grading: (5p) No partial credit
2. B  
Grading: (5p) No partial credit
3. C  
Grading: (5p) No partial credit
4. D  
Grading: (5p) No partial credit
5. E  
Grading: (5p) No partial credit
6. 

|                   |  |
|-------------------|--|
| $> 55 \text{ MB}$ | (5p) 3 points for correct inequality, with 2 points only if inequality is not strict; 1 point for any, exactly one other mistake. 2 points for correct solution of inequality, even if inequality is incorrect; 1 point for exactly one computation mistake. |
|-------------------|--|
7. 

|       |  |
|-------|--|
| \$360 | (5p) 3 points for correct equation/setup. 2 points for correctly solving the setup, even if setup is incorrect; 1 point for exactly one computational mistake, no points thereafter. Unit (\$) needs not be shown. |
|-------|--|
8. 

|          |   |
|----------|---|
| 15 cu yd | (5p) 3 points for correct equation. 2 points for correct solution of equation, even if equation is incorrect; 1 point for exactly one mistake. Unit (cu yd) needs not be shown. |
|----------|---|
9. 

|      |   |
|------|---|
| 3 ft | (5p) 3 points for correct setup. 2 points for correct solution of the setup, even if setup is incorrect; 1 point for exactly one mistake. Unit (ft) needs not be shown. |
|------|---|
10. 

|                  |   |
|------------------|---|
| -22, -20,<br>-18 | (5p) 2 points for correct equation/setup. 2 points for solving the setup correctly (even if the setup was not correct; e.g. not taking only odd integers into account); 1 point for exactly one computational mistake, no points thereafter. 1 point for presenting all three integers. |
|------------------|---|
11. 

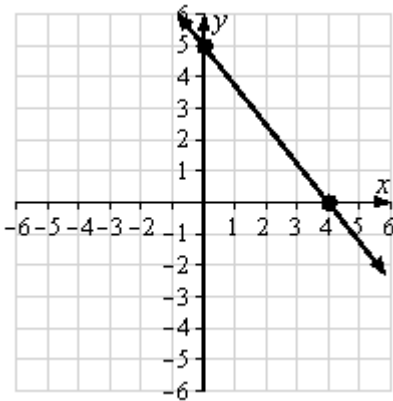
|          |   |
|----------|---|
| \$126.00 | (5p) 3 points for correct setup. 2 points for correct solution of the setup, even if setup is incorrect; 1 point for exactly one mistake. Unit (\$) needs not be shown. |
|----------|---|
12. 

|      |   |
|------|---|
| 6 oz | (5p) 3 points for correct setup. 2 points for correct solution of setup, even if setup is incorrect; 1 point for exactly one mistake. Unit (oz) needs not be shown. |
|------|---|
13. 

|                               |   |
|-------------------------------|---|
| $\frac{1}{8}x - 7 = 5;$<br>96 | (5p) 3 points for correct equation; 1 point for exactly one mistake in making the equation. 2 points for solving the equation; 1 point for exactly one mistake. |
|-------------------------------|---|

14. 3 h (5p) 3 points for correct setup; 2 points for exactly one mistake, no points for more. 2 points for correct solution of setup, even if setup is incorrect; 1 point for exactly one mistake. Unit (h) needs not be shown.

15. (5p) 2 points for each correct intercept. 1 point for drawing the (correct, connecting) line.



16. 3.25 h (5p) 3 points for correct equation. 2 points for correct solution of equation, even if equation is incorrect; 1 point for exactly one mistake. Unit (h) needs not be shown.

17. \$5000 at 7%  
\$7000 at 7.5% (5p) 2 points for correct setup. 2 points for correct solution of setup, even if setup is incorrect; 1 point for exactly one mistake. 1 point for showing both amounts. Unit (\$) needs not be shown.

18. 30 oz (5p) 3 points for correct setup. 2 points for correct solution of setup, even if setup is incorrect; 1 point for exactly one mistake. Unit (oz) needs not be shown.

19. 38 (5p) 3 points for correct equation, 2 points for exactly one mistake, no points for two or more. 2 points for correct solution, even if equation is incorrect; drop 1 point for exactly one mistake.

20. \$6000 at 9%  
\$9000 at 6% (5p) 2 points for correct setup. 2 points for correct solution of setup, even if setup is incorrect; 1 point for exactly one mistake, no points thereafter. 1 point for showing both amounts. Unit (\$) needs not be shown.