7. P. W. of \$400 = $\frac{8}{9}\frac{8}{9}$ of \$400 + P. W. of \$300 = $\frac{8}{9}\frac{8}{9}$ of $\frac{8}{9}\frac{8}{9}$ of \$300 + P. W. of \$200 = $\frac{8}{9}\frac{8}{9}$ of $\frac{8}{9}\frac{8}{9}$ of $\frac{8}{9}\frac{8}{9}$ of \$200 = \$825 82+, which is about 77 cts. more than the amount found by the ordinary method of equating the time, etc.

B.

8. Area = 84 sq. ft. Length of perpendicular on 14 ft. side is 12 ft.

9. To find the cub. contents take 2 in. from each of the external dimensions. Cub. contents = 472.82 cub. ft. Quantity of lumber = $374\frac{1}{8}$ ft.

10. Area of lining, that is, of its plane surface = $(84+77)(84-77) \times \frac{22}{7}$ or $\frac{1127 \times 22}{7}$ sq. in., etc. *Ans.* $22\frac{1}{8}$ tons.

C.

11. Cost of sheep = \$4,500; feed and yard = \$71.77½; freight = \$175; total cost = \$4 746.77½. B sold sheep \$5,562.50, etc.

12. A should get C's \$10 and \$4 from B.

ALGEBRA AND EUCLID.

A.

1. (*a*) In order that it may be exactly divisible $2x+3y=0$; $\therefore 2x = -3y$. Substitute, and dividend vanishes, that is, there is no remainder.

(*b*) $b = x^2 - 2xy - y^2$.

2. (*a*) $(x+2b)(x-b+5a)$. (*b*) $(x^2+a^2)(x+a)(x-a)(x-1)(x^2+x-1)$.

3. (*a*) $\frac{a-b}{a+b}$. (*b*) 0. (*c*) This expression becomes $\frac{x^3}{(x-y)(x-z)} - \frac{y^3}{(x-y)(y-z)} + \frac{z^3}{(x-z)(y-z)}$, etc. *Ans.* $= x+y+z$.

5. (*a*) $x = \frac{c-a-b}{b-a-c}$.

(*b*) $x = \frac{ac(n+q) - nq(c+a)}{nq-ac}$.

(*c*) $= x = \frac{ac}{b}$.

B.

6. Let x = number of gals. first pipe puts in per min., etc.; 1st = 22 gals.; 2nd = 7 gals.; 3rd = 12 gals.

(7) \$280. (8) A = \$204; B = \$84.

9. Each horse cost $\frac{\$p}{m}$. Sells n horses for $\frac{\$21\ Pn}{20\ m}$; $\therefore (m-n)$ horses = $\frac{\$11\ P}{10} - \frac{21\ Pn}{20\ m}$; $\therefore$ each = $\frac{22pm - 21pn}{20m(m-n)}$\$.

10. 90 miles.

C.

Book work.

D.

15 Euclid's Line is length without breadth, etc.

16. Consider carefully I. 4, and I. 8; I. 18, and I. 19; I. 24, and I. 25, etc.

17. Draw a figure, in which the circle is supposed to cut the straight line in three points, and proceed similarly to Euclid's construction, etc.

18. (*a*) Take the lines as given, and proceed according to Euclid's construction in I. 22, and you will at once detect the difficulty; similarly in case (*b*).

19. Two intersecting straight lines make two different angles with one another, unless they intersect at right angles. See I. 13 in Euclid.

HAMILTON PUBLIC SCHOOLS.

PROMOTION EXAMINATIONS, JUNE, 1891.

ARITHMETIC—GRADE 5.

1. Divide $\frac{19}{21}$ by $\frac{7}{21}$, $\frac{46}{51}$ by $\frac{29}{51}$, $\frac{1}{9}$ by $\frac{8}{9}$, $\frac{13}{15}$ by $\frac{14}{15}$. [14]

2. If a man walks at the rate of $3\frac{3}{8}$ miles an hour, how long will it take him to walk $40\frac{1}{2}$ miles? [14]

3. How many quart boxes will be required to hold 9 bush. 3 pks. 1 gal. 1 qt. of strawberries? [14]

4. A newsboy buys 7 dozen newspapers at 20 cents a dozen and sells them at 3 cents a paper; how much does he gain? [14]

5. If \$116,323 be divided among 89 men, how much of it will 49 of them receive? [14]