

太原市 2019—2020 学年第二学期八年级期末考试

数学解析

一、选择题（共 30 分）

题号	1	2	3	4	5	6	7	8	9	10
选项	C	C	B	D	A	D	D	C	A	B

二、填空题（共 10 分）

11. 360°

12. -6

13. $3\sqrt{2}$

14. $x > -3$

15. A. $2\sqrt{3}$

B. $\sqrt{14} - \sqrt{2}$

三、解答题（共 60 分）

16. (1) 原式 = $x(x-y)^2$

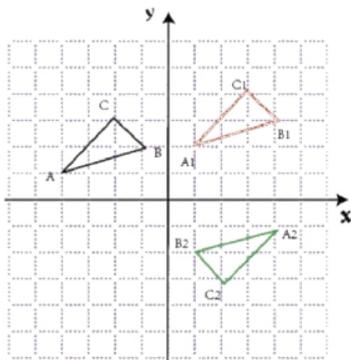
(2) 原式 = $4y(x+y)$

17. (1) $-5 \leq x < 2$

(2) 经检验, $x=1$ 是原方程的解

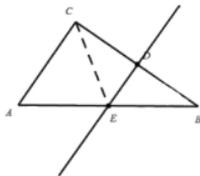
18. (1) 如图所示

(2) 平行且相等



19. (1) 略

- (2) 证明: $\because DE \perp BC$ 且 D 为 BC 中点, $\therefore BE = CE$,
 $\therefore \angle B = \angle ECB$
 $\because \angle ACB = 90^\circ$, $\therefore \angle ACB + \angle ECB = 90^\circ$, $\therefore \angle A + \angle B = 90^\circ$
 $\therefore \angle A = \angle ACE$, $\therefore AE = CE$



20. (1) 证明: $\because \square ABCD$, $\therefore AB = CD, AB \parallel CD$, $\therefore \angle ABE = \angle CDF$
 $\because BE = DF$, 在 $\triangle ABE$ 与 $\triangle CDF$ 中,

$$\begin{cases} AB = CD \\ \angle ABE = \angle CDF, \triangle ABE \cong \triangle CDF \text{ (SAS)} \\ BE = DF \end{cases}$$

$\therefore AE = CF, \angle AEB = \angle CFD$, $\therefore \angle AEF = \angle CFE$, $\therefore AE \parallel CF$

\therefore 四边形 $AECF$ 是平行四边形 (一组对边平行且相等的四边形是平行四边形)

21. (1) $\frac{1}{12} + \frac{1}{13} + \frac{1}{12 \times 13} = \frac{1}{6}$

(2) $\frac{1}{2n} + \frac{1}{2n+1} + \frac{1}{2n(2n+1)} = \frac{1}{n}$

证明: 左边 $= \frac{1}{2n} + \frac{1}{2n+1} + \frac{1}{2n(2n+1)} = \frac{2n+1+2n+1}{2n(2n+1)} = \frac{4n+2}{2n(2n+1)} = \frac{1}{n}$ = 右边, 得证.

22. (1) 设 A 种垃圾桶每组单价为 x 元, 则 B 种垃圾桶每组单价为 $(x+120)$ 元,

由题可知: $\frac{8000}{x} = \frac{10400}{x+120}$, 解得 $x = 400$, 则 $x+120 = 400+120 = 520$,

A 种垃圾桶每组单价为 400 元, 则 B 种垃圾桶每组单价为 520 元.

- (2) 设 B 种垃圾桶购买 y 组, 则 A 种垃圾桶购买 $(40-y)$ 组,

由题可知: $400(40-y) + 520y \leq 18000$, 解得 $y \leq \frac{50}{3}$,

$\therefore y$ 为正整数, 则最大值为 16

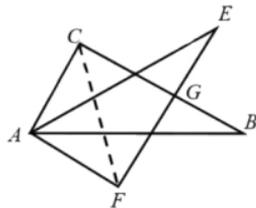
则最多可购买 B 种垃圾桶 16 组.

23. (1) $BE = 6\sqrt{3}$

- (2) A. ① 证明: 连接 CF , 由旋转可知 $AC = AF, \angle ACB = \angle AFE = 90^\circ$
 $\therefore \angle ACF = \angle AFC$, $\therefore \angle GCF = \angle GFC$, $\therefore GC = GF$

② $FH = 2\sqrt{3} - 3$

③ $CF = 3\sqrt{2}$



B.①证明：连接CF，由旋转可知 $AC = AF, \angle ACB = \angle AFE = 90^\circ, BC = EF$
 $\therefore \angle ACF = \angle AFC, \therefore \angle GCF = \angle GFC, \therefore GC = GF, \therefore BG = EG$

② $GH = 4\sqrt{3} - 6$

③ 150°

